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Original Articles.

REMOTE METASTASES FOLLOWING CANCER OF THE BREAST.*

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CANCER of the breast is a favorite subject in medical literature. Much has been written about its diagnosis, the technic of its removal and the end results of operation, and of late years it is with cancer of the breast that scientists have worked to determine the cause of cancer in general. Scattered through this mass of material is a wealth of facts concerning the remote metastases following mammary cancer which I have brought more or less together in this short paper. The incentive to do so was furnished by my interest in several cases which recently came under my observation of secondary growths of mammary cancer remote from the breast.

Before going further, it may be well for me to explain what here in this paper I mean by remote metastases. I choose to class under this heading those metastases which develop in parts of the body distant from the primary tumor. I therefore pay little attention to secondary growths in the axillary glands or on the chest wall. It is with those appearing in the bones and thoracic or abdominal organs that I am most concerned.

There is some difference of opinion by what route the cancer cells reach these distant organs. That they pass through the lymph stream is generally accepted. That they pass through the blood vessels and into the general circulation is believed by some men. Gladstone [1] is an exponent of this latter theory. He believes that the cancer cells enter the general circulation and pass by the arteries to the different viscera. To prove his claim, he cites the metastases occurring in the vault of the skull. It is distinctly stated that these secondary growths occur symmetrically and follow the branches of the middle meningeal artery. By injecting this artery with coloring matter, he determined that there is a free communication between the arterioles and venules without the intervention of small capillaries. He though that this free communication of the arteries of the bone with irregular venous spaces doubtless favored the lodgment and growth of the secondary carcinoma cells. For it is in situations where the bone is especially vascular, and the veins large, that the deposits are most common. He felt the power of resistance of that particular part determined whether the cancer cells grew or not. In other words, the selection of a certain situation for a secondary growth depends, according to Gladstone, on the state of the circulation of the part, and the power of resistance of the tissues.

Handley,[2] on the other hand, believes that where the cancer cells do not get into the lymph circulation, they travel along the fascia, and not through the arteries. He believes that the cancer spreads by continuity along the network of the pectoral fascia, which anastomoses freely with the fascia of the abdominal wall. In a later report (vol. iv.) he shows by the microscope that there is a permeation along the fascia. A fibrosis occurs about the growth as it extends thus, and shuts off here and there areas of cancer cells, which by growing make these nodules which we see clinically.

As a clinical proof of the correctness of his theory, he cites thirty-seven cases where the bones were the site of secondary deposits as proved by examination or spontaneous fracture. He excludes cases where the growth was in the rib or sternum, because of their close proximity to the primary growth and the probability of simple extension of the original process. In these thirty-seven the femur was involved 4.2%, spine 6.3%, cranial bones 2.7%. He states that the most common site for the growth in the femur is in the upper third, about two inches below the base of the trochanter; that the humerus is most often involved at the deltoid insertion. He reasons now that were the cancer cells carried by the blood stream, as the nutrient artery in the femur runs upward, the metastasis would occur at the epiphyseal line rather than below it, as is the fact. In the humerus the nutrient artery enters the bone below the deltoid insertion, and runs downward, away from the common situation of the the metastasis. He argues also that were the cells carried by the blood stream, pulmonary metastases would be more common in those cases which have involvement than in those without secondary deposit in bone. This, however, he states cannot be proved by the figures. He believes that the bones are involved where they lie nearest to the deep fascial lymphatics, that is, where they come nearest to the surface, namely, at the base of the trochanter and the deltoid insertion, sites which correspond with the places clinically most commonly involved. As the weightiest argument of all against blood infection, he brings forward the fact that the tibia and fibula entirely escape from secondary growths. He argues that were the cells in the blood stream, these bones would be just as liable to embolism as the humerus or femur.

Ribbert, in his recent book on carcinoma (Das Karcinom des Menschen) demonstrates microscopically that cancer reaches the lumen of lymph vessels and the veins and arteries, and illustrates the passage of the tumor into the circulation by a breast cancer growing into the inside of a vein. He says that the cancer cells proliferate so rapidly that they lose their connection with the main growth and wander about until they lodge, and then continue to grow. They may go to pieces and act on the surrounding tissues as a foreign body.

He believes that, in breast cancer especially, the growth is certainly by continuity. He believes also that metastases by the blood stream do occur, though ordinarily less common by that than by the lymph stream. He thinks that

* Read before the Alumnæ Association, Woman's Hospital, New York, April 23, 1912.

[1] Middlesex Hospital Cancer Reports, vol. iii.

[2] *Ibid.*, vol. iii.

the longer the primary growth is present, the more liable it is to get into the blood circulation.

In going over the medical records at the City Hospital, I was very much suprised at the number of cases of internal cancer secondary to breast cancer. I had no idea that they were so common. Such cases evidently go to the physician rather than to the surgeon. It seemed while looking over these records that it would be possible to illustrate from them almost any kind of case desired.

The reports of the Middlesex Hospital are most trustworthy, as the diagnosis is made from microscopic sections on practically every case. I have culled most of the following figures from the various clinical reports of that hospital. In comparing the frequency of remote metastases in the cellular and fibrous type of mammary cancer, it is of interest to note that Campiche, Lazarus and Barlow found[3] that these growths were widespread in both types, but that the fibrous type showed a greater tendency to infect important organs, while metastasis in the bone was found more commonly in the cellular type. Metastases are, of course, multiple in many cases. A metastasis in the other breast is not so very uncommon. In a series of 1,512 cases the opposite breast was involved in 9% of cases. On the average, the secondary growth appeared three years after the primary. In another series of 412 cases collected by Beckton (Report viii) 46 had a metastasis of the opposite breast. From the figures collected during 1910 and 1909, there were 28 cases of cancer of the breast, with 10 cases of secondary growth in the opposite breast. Combining these cases, there are 1,952 cases with a secondary growth in the opposite breast in a little over 9% of the cases.

The thoracic organs, as one would naturally expect, are frequently involved. In the 28 cases occurring in the years 1909 and 1910, there were 22 cases where the thoracic organs were affected.

When one comes to the abdominal organs, the liver is by far the one most frequently involved. Beckton collected from 1904 to 1908 481 cases of cancer of the breast. In 96 of these cases there were metastases recognized post mortem. Of these 96, 51 had involvement of the liver, and of the 28 cases occurring in 1909 and 1910, there were 10 cases in which there was liver involvement.

The kidney, however, is one of the organs least frequently involved. In Beckton's series of 96 cases with metastases recognized post mortem, the kidney has a secondary cancer in only 8 cases. In the 1909 14 cases, there was but one case of kidney cancer, and in 1910 there was not a case of kidney involvement in the 14 cases. This, therefore, makes the case which I report later quite uncommon.

The relative frequency of the involvement of the different organs is often quite unreliable when determined clinically. The figures made from autopsy findings should alone be accepted. The following statistics demonstrate this clearly. Campiche, Lazarus and Barlow collected from 1858 to 1903, 1,110 cases in which no autopsy was made. From these cases there was said to be a metastasis of the liver recognized during life in 9 cases, and in the kidney in but one. In a series of 410 with a post-mortem examination, the liver was involved in 202 cases, and the kidney in one, — a vastly higher percentage. The same difficulty occurs when one tries to consider the figures of secondary growth in the skeleton. The skeleton is scarcely ever examined unless there are clinical evidences drawing particular attention to a definite bone. In these same 1,110 cases, the vertebra were involved but three times, the femur but nine times clinically, while in the 470 cases examined by the microscope the vertebræ were involved thirty-two times and the femur twenty-eight.

Sprengel, quoted by Snow,[4] examined carefully the bones in 12 cases of mammary cancer; 9 of these showed on microscopic examination scirrhous carcinoma, although in not one had there been during life anything like a tumor or a spontaneous fracture to call attention to the bone.

Ribbert states that bone metastases in females most commonly follow cancer of the breast, while in the male they are secondary to the prostate, and, as has already been said, the cellular type more often involves the bone secondarily than the scirrhous form. Ribbert states that the bone metastasis may be the only one present in the body, the other organs being free. With a bone metastasis, spontaneous fracture is of course liable to occur, and is often the first symptom of any trouble.

No matter how metastases reach the bone, statistics show that secondary cancer of the bone beyond the elbow and knee is exceedingly rare. In a large series of autopsies of cases of cancer in the *Middlesex Hospital Report*, cancer of the tibia is mentioned only once, and it is explained in this case as having reached the tibia by continuity from the femur, the knee-joint being ankylosed. The femur is said to be involved 4.2%, spine 3.6%, cranial bones 2.7%.

Ribbert speaks of metastases in the brain, including the membranes, as occurring most commonly after breast cancer. He puts them down as occurring in 15% of the cases.

I have been able to find no mention of a secondary growth in the cord itself.

The following case is of interest because at the time of the breast operation the prognosis seemed most favorable. The recurrences were fairly rapid, however, occurring in organs which are not often involved.

Mrs. J. C. S., forty-four years, was operated upon in June, 1910, for a tumor in the right breast of the size of a large almond, which had been discovered accidentally about seven weeks previously. No glands were felt in the axilla or about the clavicle. At the operation both pectoral muscles were removed, and the axilla dissected. Dr. Whitney was present at the operation, and reported that the tumor was carcinoma and that a few small glands found in the axillary fat contained

[3] Middlesex Hospital Cancer Research Report, iv.

[4] Brit. Med. Jour., March 12, 1892.

no metastases. An examination made by him later gave the same result. The final diagnosis was medullary cancer with nothing abnormal in the axillary glands. The patient was not seen again until January, 1912. She had been perfectly well until six months before this date. Then she began to have pains in her back. Treatment by a regular doctor and by an osteopath gave no relief. The pain became very severe. It was painful to lie down or sit up. Walking about seemed to ease the pain. Finally a mass was found in the abdomen coming down under the left ribs. An x-ray picture taken by Dr. Brown showed the kidneys of normal size, and a degenerated spot in the transverse process of the fifth lumbar vertebra. At times her whole spine seemed rigid, and at times much less so. Being a very nervous patient, it was hard to determine the exact amount of rigidity. A catheter specimen of urine contained no albumin. I think that I never saw a patient who appeared to suffer such pain as this woman. She was constantly found walking the floor, holding on to her side. On the nineteenth of January, an abdominal operation was done to determine the site of the tumor. It was found then to be the kidney. The patient was turned over, and the kidney removed. It contained a tumor about the size of the thumb, growing out under the capsule. On examination Dr. Whitney pronounced it to be of the same type of cancer as that in the breast. The patient's pain was greatly relieved; it might be fair to say, entirely so. She had some difficulty in passing urine in the bedpan, and so even the first day after the operation was allowed to get up and use the cabinet. Retention of urine then appeared, partial at first, but gradually increasing, until by Jan. 31 a catheter was always necessary. By this time she was not able to stand on her feet, although the evening following the operation she had been able to do so. She gradually lost the use of her legs, and was unable to move them. The surgical convalescence meantime went along rather exceptionally well. She was seen by Dr. Thomas in consultation. His notes of the case he kindly loaned to me. The diagnosis made by him, and later agreed to by Dr. Walton, was a metastasis in the cord itself in the region of the dorsal vertebræ. Physical examination showed a very complete paralysis of both legs, and the only movement being enough flexion of the legs on the thighs to start them swinging, and a very slight flexion of the thighs on the trunk. The muscles of the legs are relaxed, there being no spasticity, but there is no atrophy. Knee-jerks are present and equal on the two sides. There is slight ankle clonus and Babinski sign; and Oppenheim's reflex on both sides. Sensation for touch and pain in both legs is markedly diminished in both legs, and on the trunk, front and back, the upper level on the back being at the level of the third lumbar spine and on the front to 1½ inches above the umbilicus on the left, and 3 inches above on the right. The abdomen is full, slightly distended, but not tender. The abdominal and epigastric reflexes are absent on both sides. The muscles of the thighs and legs react well to the faradic current. The arms are normal in every way. The pupils are equal and normal, and there is no disturbance of the ocular muscles, such as diplopia or nystagmus. Retention of urine.

The condition remained much the same, except that bedsores developed, and the patient died early in March. The degenerated place in the transverse process of the lumbar vertebra clinically caused no symptoms.

A. McN., fifty-three years, single. Entered the Boston City Hospital on Oct. 18, 1911, with the following history:

One year ago the left breast was amputated for cancer at another hospital in the city. For about one year the patient has had more or less trouble with the left knee. It began with sudden pain and slight swelling. It has bothered her off and on until four weeks ago, when the knee became swollen, painful and stiff. There is no history of an injury. There has been no cough, no chills, no vomiting or loss of weight.

Physical examination. — A well-developed, rather fat woman, pupils equal, regular and react to light and distance. Throat negative, tongue protrudes straight, clean and moist. Neck negative. A scar for the removal of the left breast. Heart not enlarged. No murmurs, occasional râles at the base of lungs. Abdomen fat, otherwise negative. Temperature, 98.9; pulse, 85.

There was no evidence of any local recurrence of the breast cancer. The left leg was greatly swollen from the mid thigh to the ankle, and motion was slightly painful. The x-ray plate showed a great loss of density in the head of the tibia. There were many expressions of opinion given by the surgeons who saw the case as to the diagnosis. Finally I cut out a bit of the tissue for examination. Dr. Mallory reported it to be carcinoma of the type similar to mammary cancer.

Because of the great rarity of cancer of the tibia previously mentioned, this case is of considerable interest.

G., forty-two years old, entered the Boston City Hospital on Dec. 3, 1910. She gave the following history:

January, 1909, she noticed a small lump in the right breast near the sternum. Amputation of the breast was done in the same year at a hospital in the city. In September, 1909, had an attack of rheumatism which has been continuous up to the present time. In December, 1909, had a recurrence of the breast tumor in the operated scar. Went back to the hospital for rheumatism in May. Discharged unrelieved in two weeks. Breast has been getting rapidly worse, but not painful. Has been attended since by district nurse. Three months ago began to have a tender and painful lump on the right jaw, which is increasing in size. Has had considerable pain in both knees and the left hip. Three days ago, while the nurse was attending to the patient, she lifted the right leg by the foot. The patient felt a snap, the nurse put the leg down and then lifted it again; then came a louder snap, and a large lump appeared on the front of the hip. She was brought to the hospital, unable to move, and in much pain.

Physical examination. — Thin, emaciated woman. Mucous membranes pale. Pupils equal and react. Teeth poor. Tongue rather dry and brown coated. Right ramus of the jaw presents a firm, rounded swelling from about one inch in front of the angle to an inch from the symphysis, closely adherent to the bone. Not tender. Enlarged glands beneath both rami. Supraclavicular glands enlarged. Chest examination unsatisfactory because patient unable to sit up. Lungs in front normally resonant. Heart not enlarged, sounds of good quality. No murmurs. Left border in nipple line. Pulses equal, regular, synchronous. Artery wall not palpable. Right chest shows scar of breast amputation, and dissection of axilla. Nearly in the median line a hard, nodular, heaped-up growth, about the size of half an orange, firmly adherent to the chest wall. Ulceration, slight amount of discharge. Tumor not tender or painful. Axillary and inguinal glands not enlarged. Liver dullness from sixth rib to costal border. Edge not felt. Abdomen tympanitic and soft. Visible peristalsis. Just below the iliac crest on the left and behind the anterior superior spine is a non-tender, non-painful mass about one and one-half inches in diameter, and two inches long, closely adherent to the bone. Femoral glands enlarged. The

right femur presents an oblique fracture at the mid-shaft, with crepitus, mobility and localized tenderness. One-inch shortening.

Patient was put in an ordinary apparatus for a fractured thigh, and, without getting any great amount of union, remained in the hospital until the hot weather in July, when she quietly died.

The case is of interest because of the spontaneous fracture, evidently due to a metastasis in the femur. The tumors of the jaw and ilium evidently also bony metastases.

Mrs. D. Entered the Boston City Hospital in June, 1911. She gave the following history:

She was operated on for a tumor of the vagina. Then a second operation for repair of the perineum, etc. Then came a vaginal hysterectomy for a tender uterus. Then an appendix operation. The right breast was then removed for cancer. Then the left breast was removed for cancer. Then a laparotomy was done, both ovaries were taken out, being cancerous. Then came an operation on a tumor of the jaw, which proved to be cancer, and a dissection of the glands on the opposite side. When she entered the hospital, she was thin, emaciated and had much difficulty in swallowing, being able to take liquids only.

On x-ray examination of the chest there was a mass in the mediastinum which probably pressed upon her esophagus. A gastrostomy was done. Stomach was found very much contracted, and numerous small nodules scattered through the retroperitoneal region.

She lived for several days quite comfortably, and then without any particular reason quietly died.

This case is of interest because of the many operations she had and the metastases of a breast cancer occurring in the other breast, in the ovaries, and in the jaw itself.

BLOOD AND STOOL EXAMINATIONS IN A COMPANY OF PHILIPPINE SCOUTS.*

BY ELMER S. TENNEY, M.D.,

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WHILE serving with a company of Philippine Scouts in the Cotabato Valley, Mindanao, early in 1911, I had occasion to make a few examinations of the blood and stools of some of the men who came on sick report. These few examinations led me to make examinations of the blood and stools of every member of the command.

There was nothing peculiar about this particular company, and it was taken simply because it was the only one present.

It was made up almost entirely of Visayans, natives of Samar, Cebu, Leyte, Negros and Panay, and had come to Mindanao about six months previous to the time of the examinations.

With the exception of one or two men, all were apparently in very good health. None had had any recent field service.

The blood was examined for filariæ, and the stools for animal parasites. In the case of the blood, no effort was made to find the malarial parasites, and in the case of the stools, no effort was made to find amebæ for two reasons: first, it would have required more time than was then available; and second, there were in the command no clinical cases of either malaria or dysentery.

The examinations of the blood for filaria nocturna proved negative in every instance save one. In the case of the only man who really looked to be in poor health, this blood parasite was found in abundance, but just how much this infection had to do with his poor health is uncertain, for the stool examinations showed that he also harbored large numbers of hookworms, a moderate infection with ascaris lumbricoides and trichurius trichurius and a trichomonas as well.

Of the one hundred men examined, none showed quite so varied an assortment as did this one, although several had two or more.

The examination of one hundred men gave the following results.

BLOOD.	
Filaria nocturna,	1
STOOLS.	
Ascaris lumbricoides,	52
Trichurius trichurius,	48
Uncinaria,	24
Trichomonas,	1
Negative,	15

As I have before mentioned, one man had samples of the entire list, and fourteen showed three species; still more had two kinds.

The work of Chamberlain, Bloombergh and Kilbourne among the Igorots of Luzon, reported in the *Philippine Journal of Science*, vol. v, no. 5, Section B, Medical Sciences, November, 1910, under "Examinations of Stools and Blood among the Igorots at Baguio, Philippine Islands," gave considerably higher percentages in every instance, but the 119 male Igorots examined by them, though they were employed as laborers by the quartermaster at Camp John Hay or by the Bureau of Public Works of the civil government, probably lived amid conditions very favorable to infection; while in the case of the Scouts, all lived in good quarters, wore the uniform of the soldier, including shoes, and subsisted upon good food. Under such conditions infection would not spread so readily, and it is also very probable that in the majority of instances the infection took place prior to the man's entrance into the service.

In the examination of the Igorots, three cover-glass preparations were completely examined; in my cases only two were examined; it is, therefore, probable that the examination of more preparations would have given slightly higher figures, especially for uncinaria.

Chamberlain, Bloombergh and Kilbourne state that their findings showed "a much higher percentage of vermicular infections" than those of Bowman at the Civil Hospital, whose examinations covered children alone.

They state also that "the percentage of infections with uncinaria are the same in our series of adult males and in the combined Civil Hospital statistics, 29% in each instance, but this is a much larger rate than was found among Bowman's school children, who gave 18%."

* Read by title at the eighth annual meeting of the American Society of Tropical Medicine, held in New Orleans, May 18 and 19, 1911.

My rate of 24%, therefore, lies between Bowman's 18% for school children and the 29% found by both the Civil Hospital and by the Army Board for the Study of Tropical Diseases.

Chamberlain, Bloombergh and Kilbourne also state that "at Bilibid Prison and in Scout companies the rates of hookworm infection found among adult males has exceeded 50%, while among 9,885 members of general population in Luzon examined by the Bureau of Health the infection rate has ranged from 11.1 to 16.1%."

Bowman could find no relation existing between hookworm infection and the health of the children.

"This experience is in accord with observations made elsewhere in the Philippines and leads to the conclusion that uncinariasis is not the serious menace to the health and progress of the Filipino that it has been found to be in the case of the natives of Porto Rico and the white man in the southern part of the Unites States."

While the findings in my Scout cases are also in accord with the above statement, I have several times in the case of young Filipinos made the diagnosis of uncinariasis from the clinical symptoms alone, and later verified it by the microscope.

In a few cases the symptoms have been quite marked and the illness severe.

No one of the Scouts, with the exception of the man above mentioned, showed anything to indicate the presence of the infection prior to the examination of the stools.

As differential leucocyte counts were only made in a few of these cases, no record of the findings is included in this report; however, I may say that those which were made were in accord with the findings in the stools, and the percentages not particularly at variance with those reported by Chamberlain, Bloombergh and Kilbourne.

In concluding this short report, while it presents nothing new, it may be well to call attention to the following points:

(1) The prevalence of intestinal parasitic infection in a very large percentage of Filipinos, even when living under the favorable conditions of the soldier.

(2) That the average Filipino can harbor a variety of intestinal parasites without any apparent detriment to his general health.

(3) That uncinariasis is common, but seldom causes any definite symptoms.

(4) That filariasis is not of frequent occurrence.

THEORIES AS TO THE CAUSATION OF MONSTERS.

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After delivering the case reported below, I became interested in the etiology of the condition and consulted many authors on the subject. In this paper the writer will try to give a brief summary of the many theories advanced at various times as to the cause of monstrosities. From the earliest times we find this subject of interest, and many and widely divergent have been the reasons assigned for their presence. Many of the theories have now been cast aside as without scientific foundation, but still some are preserved and believed in by many to the present day. During the past few years, great advances have been made in the classification of the condition and in the understanding of the causative factors. These advances have been the result of numerous animal experiments; also from closer observation of embryonic and fetal development, together with our modern means of study, such as the microscope, with which the early investigators were unacquainted.

In early history we find abnormalities of this nature ascribed to *supernatural* agencies, and it was believed that the "gods" had a direct influence in their production. Thus on the birth of a monster the wrath of the "spirits" was the reason of this visitation, and they were invoked to appease their anger. Then again, and for many centuries, the constellations were held responsible, and the sun, moon and stars were given credit for an untoward influence in reproduction; thus we find the terms "moon-face" and "monster" to be synonymous in early writings.

The above two theories, with many of like nature, engaged the attention of learned men; yet it must not be supposed that the above theories were universal, for we find amongst our early thinkers some who believe in *natural* causes and who sought for physical changes and formulated theories with this physical idea as the basis. Thus we find the monstrosities ascribed to abnormal seminal or menstrual discharges, some believing that it was only the seminal secretions which controlled the phenomena and others that the menstrual discharges had a malignant action with the resultant monstrosity; this latter idea may be the foundation of the old Hebrew law prohibiting intercourse during the "unclean" period.

It remained for Aristotle to teach that it had a dual causation, and he held that it must be the result of pathological conditions in both male and female elements of reproduction. This latter teaching is most wonderful when it is remembered that at the time the ovum or its rôle in reproduction was unknown.

Another theory much in vogue was that of hybridity; which is, that conception may be the result of coition between higher and lower forms of life, with the resultant fetus having the physical peculiarities of both; thus a "dog-faced" monster would be thought due to coitus between a dog and woman, for it was held, by the majority, that the male was the sole germinatur factor and the female more or less of a passive host for the development of the fetus.

In the above we see some of the early etiological theories for monstrosities, and it is interesting to note that, despite their lack of knowledge of embryology, their myths and superstitions, we find a large school believing in this physical factor as the basis of the condition.

Next in order we may mention the *mental*

theory, by which the thoughts or imaginations or dreams could change the normal course of the fetus into a monstrosity. Thus a hideous dream, or the fright of repulsive forms of animal life, would result in the subsequent child being malformed in some respect, to coincide with the mental impression of the mother, and even to the present day we find this idea prevalent among many people.

A more rational theory than the above is that *maternal* impressions will influence the embryo or fetus with resultant strange forms or developmental changes. Eminent authority to-day believe that a sudden fright or nervous shock may be an etiological factor not directly but indirectly by interference with the normal nutrition of the embryo or fetus or by causing a sudden uterine contraction with consequent pressure on the ovum or embryo. This leads us to the effect of *pressure*, which is regarded as a most tenable theory, and it is thought that traumatism received by the embryo or fetus in early life would result in abnormalities; or that intra-uterine conditions, such as tumors, hydramnios, etc., may by mechanical interference with growth, or by interference with the nutrition of the varied parts, be an underlying cause for the phenomena.

Disease of the embryo or fetus or its adnexa is unquestionably a cause; thus we find changes in the amnion (which bears the same relation to embryonic pathology as does the placenta to fetal pathology) (Ballantyne) will result in monstrosities. These pathological changes in the amnion are summarized as due to (1) pressure, (2) disease, (3) arrested development. We find not infrequently adhesions between fetus and amnion; also amniotic bands which seem to be a potent cause of abnormalities. It has been demonstrated in animals that changes in the amnion are followed by changes in the embryo and fetus.

The funis by pressure on a limb or other portion of the fetus, or by forcing into a mal-position a normal member, may by interference with nutrition, or by mechanical interference with growth, result in many pathological specimens. Thus it is granted that many intra-uterine amputations of limbs are due to this cause, and specimens have been obtained where the cord, twisted about a part, had almost amputated it.

The most modern theory, and the one which in the light of our present knowledge is regarded as the most comprehensive, is that known as the embryological theory, the groundwork of which is that the majority of monstrosities can be accounted for by changes in the embryo itself, and that these morbid changes are due to many and varied causes, the exact nature of which are as yet in doubt, but result in the arrested development of the fetus we see at birth. At this time it might be well to call attention to the fact that the majority of monstrosities are aborted in the early months of pregnancy, and it is only the odd one we see at full term. This arrested development, spoken of above, we see in the failure to develop of a part, such as a rudimentary limb; or in the persistence of part or organ which under normal conditions should disappear, as urinary fistula when the urachus persists; we see it again in the failure to unite of normal organs or portions of the anatomy, such as in cleft-palate or hare-lip. Then again it is not infrequent to have an absolute loss of tissue, with the consequent apposition of parts which normally are not contiguous. Double monstrosities or cases of excessive development are probably due to morbid changes in the blastodermic layers or in the ovum or spermatozoa.

Summary. — In a word, the causation of monstrosities by supernatural means (as understood by the ancients) is without foundation.

Maternal impressions such as trauma or nervous shock may have much weight. Hybridity need not be considered. Pressure exerted by adhesive bands on the funis, or as the result of trauma, are no doubt the cause of some deformities. Changes in the amnion, no matter what the reason, are acknowledged to be a most certain cause for many types.

Some of the minor abnormalities may be the result of disturbances in the fetal period; but the majority of monstrosities can be accounted for only by morbid influences acting on the embryo itself or the germinal cells.

Before reporting my personal case I wish to state that the majority of the material in this paper has been obtained from Ballantyne's "Ante-Natal Pathology and Hygiene," though numerous articles have been studied.

CASE: Mrs. K., age thirty-two, strong and healthy appearance, para iv, all children living and well. After patient was in labor ten hours, examination made and showed cervix, two fingers dilated, membranes intact, breech presentation, fetal heart 140. Pains continued good and after three hours, as mother appeared to be losing strength, patient was again examined and no progress was apparent; but at this time could be distinctly felt a limb, which had all the characteristics of a hand, and yet with the knowledge of a breech presentation, it seemed impossible, so that a diagnosis of probable footling was made, and to be certain, as it was a puzzle, ether was advised.

Patient was etherized and cervix dilated manually, membranes ruptured and breech presentation verified. After considerable difficulty, for there was no portion of the fetus easy to grasp, the following living monstrosity was delivered.

Weight 4½ lb., head well formed, bones fairly hard, sutures open, fontanelles open, though posterior only slightly.

Measurements: Occipito-frontal, 13¾ inches; occipito-bregmatic, 12½ inches; sub-occipito-bregmatic, 12 inches. Eyes were well-formed, nothing abnormal noted. Ears normal except a sulcus about ¼ inch deep internal to tragus. Hare-lip with obliteration of external orifice of right nostril. Cleft-palate extending through into nasal fossæ anteriorly and posteriorly. Trunk good size and no abnormalites.

The genital organs externally showed the sex to be female; the labia majora well formed, the minora only indistinctly made out. The vagina could be demonstrated by separation of labia. Urethra seemed normal.

Both arms were entirely absent, with skin over shoul-

der and axillary region continuous and without scars or stumps. Palpation showed the clavicle and scapula in normal position on both sides, and no sign of humerus or arms could be made out.



Complete View of Monster.

Abdominal examination showed nothing abnormal on inspection or palpation. From the pelvic region on each side extended a stump or rudimentary lower limb, about two inches long. On the right, what is probably the femur is 1½ inches long and freely movable in an apparently normal acetabulum. Articulating with the lower end of the femur is one bone, probably the tibia, ½ inch long, and the fibula seems to be absent. The tarsal bones also seem to be absent, but there are three bones, about ⅜ inch long, which may correspond to the metatarsal bones. From this lower stump protrudes two appendages with a space between of one inch and appear as toes. The larger of the two latter was at site of first toe and contained two small bones each $\frac{7}{16}$ inches long and articulating with each other; no nail was present. The other was at site of fifth toe and contained only one bone ½ inch long.

The left leg (?) was exactly similar to the right, except that, besides having two toes, it had a third small stump between the other two, but containing no bones.

As a whole, the specimen presented a most interesting appearance, as it was delivered at full term, according to mother's reckoning, and yet complete absence of upper extremities, with only rudimentary lower ones, and cleft-palate and hare-lip. The accompanying photograph was taken by Dr. Malcolm D. Miller and show most clearly the various abnormalities.

Tuberculosis Dispensary in Brookline.—On Tuesday of this week, July 2, a new tuberculosis dispensary was opened in Brookline, Mass., under the charge of Dr. H. Lincoln Chase and Dr. Charles H. Lawrence, Jr., to provide free examination, treatment and assistance for any who may apply. Suitable cases will be referred to sanatoria, and a visiting nurse will supervise home care.

Symposium.

ON SUPPURATIONS OF THE URINARY TRACT.*

SUPPURATIONS OF THE URETHRA, PROSTATE AND SEMINAL VESICLES.*

BY H. TERRY, M.D., PROVIDENCE, R. I.

To consider fully the subject of pus in the urine coming from the parts below the bladder would take so long that the sources can only be hinted at.

Pus may mingle with the urine because of urethritis, acute or chronic, due to the gonococcus or other irritant, prostatitis, seminal vesiculitis, stone in the prostatic urethra, neoplasms or ulcers in the urethra or because of inflammation under a long foreskin.

Balanoposthitis is to be distinguished from a urethritis which requires more attention than is frequently give to the man who says that he has gonorrhea. If due to a sore under the foreskin, the sore should be exposed by a dorsal slit, or better by two lateral incisions and a formal circumcision done later. In elderly men such a sore should suggest cancer.

A urethritis calls for a microscopic examination of the pus, and though rare, a urethral chancre should be considered. Dr. Keyes affirms that a non-gonococcic urethritis means a prostatitis or seminal vesiculitis, and the following seems an illustration.

A man forty-five years old, who had gonorrhea when twenty and had not been outside the family since his marriage, acquired a urethritis without gonococci. A year later he complained of depressed spirits, loss of mental power, lessened sexual desire and incomplete erections. The seminal vesicles and prostate were very tender but not much enlarged. A short course of massage and *nothing else* did away with all these symptoms. Probably his prostate was inflamed at the time of his urethritis. A non-gonococcic urethritis may be contagious. A young man brought to me the young lady from whom he appeared to have contracted gonorrhea. No gonococci could be found in either, but morphologically identical rod-shaped bacilli were found in the discharges from each.

Stone in the prostatic urethra is not common. Occasionally stones form in the prostate giving no symptoms, but rarely a stone works out into the prostatic urethra, causing inflammation and pus in the urine. Stones may lodge in the urethra from above, as occurred in the patient from whom the stones shown earlier were taken.

Inflammations of the prostate and seminal vesicles are the most frequent and important causes of pus in the urine originating in the genital tract. The prostate is made up of stroma consisting of fibrous tissue with unstriped muscular fiber and holding the glands. The glands consist of many acini with their ducts, which, uniting, finally empty into the prostatic urethra by fifteen to twenty openings. A posterior urethritis, though it may not invade the glandular structure

* Read at a meeting of the New England Branch of the American Urological Association, Nov. 28, 1911.

of the prostate, usually does so to a varying extent, and different parts of the prostate may be invaded to a varying degree. This often gives a nodular feel to the inflamed prostate.

The frequency of prostatitis is not generally appreciated. Rothschild, as quoted by Young, Geraghty and Stephens, found chronic prostatitis in twenty-seven out of thirty autopsies and in 90% of all men examined. The frequency with which the prostate is involved in urethritis is at present estimated at about 90%. The position of the prostate so near the rectum and with its ducts entering the prostatic urethra renders it very liable to the introduction of pathogenic bacteria. The gonococcus is the most frequent invader, though other bacteria usually enter later owing to the impaired resistance.

In a very interesting article on the etiology of prostatic hypertrophy, Dr. Edgar G. Ballenger has demonstrated the bacteria in the secretion of the prostate in a large number of individuals. He used a dark field illuminator for the examination, and in a considerable number of individuals made cultures. Nearly all the bacteria found belonged to the colon bacillus group or to the staphylococcus group. His patients complained of sexual neurasthenia, hyperesthesia of the posterior urethra, mild irritation of the bladder, premature ejaculations and the like.

In chronic inflammations of the prostate there may be little or no pus, the inflammation being especially about the acini in the stroma. Bacteria may be present in sufficient quantity to make the urine cloudy. This condition should be distinguished from purulent urine. In acute inflammation of the prostate, if a few acini are involved, there may be little secretion to be found. If more glands are involved, these may break into one another until a prostatic abscess is formed. These abscesses usually empty into the urethra. Rarely they empty into the rectum. They may open into Retzius' space and point at the umbilicus. These abscesses seem to me to be rare. I have seen one in the service of Dr. Hersey. The abscesses other than I have seen seemed to come from inflammation about the seminal vesicles. The prostate may be chronically inflamed and yet no pus be squeezed out until massage has been done several times. In other cases the prostate may be large and doughy and when massaged may be made to diminish in size until a distinct depression is felt surrounded by a hard rim. Usually a pussy discharge is found at the meatus. When pus is present in the massaged fluid, the spermatozoa if found are usually not motile.

We are indebted to Dr. Eugene Fuller, a member of this society, for enforcing our attention on seminal vesiculitis. This and prostatitis are so confused in most textbooks and journal articles that no very good distinction can be made from the literature. They are so intimately connected anatomically that, though it is not uncommon to find an enlarged and tender prostate without being able to feel the seminal vesicles, it is rare to make out enlarged and tender seminal vesicles with a normal feeling prostate, and it seems probable that in the latter condition the prostate must have been more or less involved. If the prostate alone is inflamed, the symptoms are more local, while if the seminal vesicles are also inflamed, there may be also referred pains, especially along the ureter and in the kidney region. The close proximity of the seminal vesicles to the ureter, as shown in the dissection, accounts in part for these referred pains.

The following case history taken from the hospital records shows a frequent error in mistaking prostatitis and seminal vesiculitis for cystitis.

A single man forty-two years old has had for seven or eight weeks difficulty in urination. The stream was intermittent, there was slight tenesmus and some dribbling after urination. There was no special pain or frequency. Four weeks ago he began to have irrigations of the bladder through a catheter. Two weeks ago he noticed small amounts of pus in his urine, and bladder irrigations were gradually increased in frequency until they were given daily. One week ago he began to have more frequent urination, accompanied by intermittent stream and followed by some blood. For the past five days he has been passing water every hour, increasing to every half hour. There has been some tickling sensations in the perineum, and tenderness over the perineum and above the pubes. The past history shows that he has had gonorrhea several times, the last attack about a year ago.

Examination showed the pulse, temperature and respiration to be normal. No urethral discharge. By rectum the prostate seemed to be large and very tender. The urine was smoky, albumen ¼%, much sediment containing blood cells, many polynuclear leucocytes, a few round cells and small squamous epithelium. On the third day the patient felt better and the frequency and tenesmus had diminished. On the fourth day he was up in a chair, urinating once in two hours. The urine contained considerable sediment and a slight trace of albumen. On the sixth day he went out feeling very well. The urine on discharge was pale, specific gravity 1023, slight possible trace of albumen and a slight amount of sediment. He was massaged at the out-patient department and apparently got well. This patient had textbook symptoms of cystitis and I found recently that this diagnosis was allowed to remain on the hospital records. I believe that from having a slight prostatitis which gave him some frequency and some spasm of the cut-off muscle, the passage of a catheter converted this into a severe inflammation.

In considering inflammations of the prostate and seminal vesicles, the presence of tuberculosis should be thought of. Opinions vary very much as to whether primary tuberculosis occurs in the prostate and vesicles, some believing that the primary focus is in either the kidney or epididymis, while others, notably Keyes, that genital tuberculosis begins in the prostate. The symptoms of tuberculosis of the prostate and vesicles is not at first well pronounced. There may be a gleety discharge or a slight dysuria, or, in the case of vesiculitis, some blood in the semen.

That at least the inflammation of the vesicles may be the predominant sign of genital tuberculosis was evidenced by a man with tuberculosis

of the prostate vesicles and bladder and in such great distress that I drained the bladder at once before making a diagnosis. He had had his seminal vesicles opened through Dr. Fuller's incision by a very eminent genito-urinary surgeon in another city. So far as examination could tell, the epididymis was not diseased. It is not likely that this operation would have been done had the surgeon found evidence of tuberculosis elsewhere. Apparently the treatment of tuberculosis of the prostate and seminal vesicles is very unsatisfactory and the usual treatment by massage does actual harm. Operative treatment has not been satisfactory and most reliance must still be placed on hygienic measures.

In the treatment of vesicles or prostates infected by the gonococcus, the common colon bacillus or other bacteria, massage, irrigations, instillations and dilations seem to be most frequently used. Dr. Eugene Fuller reports many cases of vesiculitis in which the vesicles are opened longitudinally with very good results. I have seen Dr. Fuller operate and I believe that his success is due to his superior sense of touch. Though I was familiar with the feel of this patient's vesicles through the rectum, I had to confess that I could not feel them through the wound of operation.

Dr. William T. Belfield, of Chicago, washes out the vesicle and epididymis through an incision in the vas deferens. After sterilizing and cocainizing, Dr. Belfield cuts down on the vas through a short incision, opens it longitudinally, passes a ligature into the lumen and out through the side of the vas so that it may be lifted out again, and injects argyrol or some antiseptic into the vesicle and ampulla and into the epididymis. Dr. Belfield's results seem to show that this simple operation is of great value.

SUPPURATIONS OF THE URINARY BLADDER.*

BY HERMAN C. PITTS, M.D., PROVIDENCE, R. I.

In considering the source of pus found in urine drawn from the bladder, it is necessary, of course, to eliminate the kidneys and ureters and the deep urethra. This done we have, first, the bladder wall itself to look to and, second, some pus cavity in the surrounding tissues or in a neighboring organ, emptying into the bladder. Pus from the bladder wall itself is the direct result of an infection, and an infection of the bladder wall is always accompanied by pus. The immediate cause of an infection is the presence of one or more varieties of bacteria; the predisposing cause, an insult to the bladder mucosa. Many infections take place as a direct extension downward from the upper urinary tract, or an extension upward from the deep urethra. Organisms may be carried to the bladder directly on dirty instruments, or from an infected urethra by instruments, and the instrument that carries the infection may produce the insult that makes its spread possible. Bacteria excreted through the kidneys may find lodgment in the bladder, and again there may be an infection of the bladder by organisms passing through the tissues from the bowel. A hematogenous infection of the bladder is conceivable and probably does occur at times. Many different varieties of organisms have been isolated from infected bladders. Casper gives the following in the order of their frequency: bacillus coli communis, streptococcus, proteus Hauser, bacillus tuberculosis, diplococcus ureæ liquefaciens, staphylococcus ureæ liquefaciens, streptobacillus anthracoides, gonococcus, and bacillus typhosus.

As mentioned before, some insult is necessary to make possible the growth of these organisms in the bladder. The insult may take the form of trauma, — as, for instance, the rough passage of an instrument, or a foreign body in the bladder, or the passage of a calculus through the bladder. Congestion is another common insult, as, for instance, the congestion of retention from enlarged prostate or tight stricture, or in spinal cord disease. Also the congestion due to irritating drugs ingested, as, for example, cantharides; or from irritating solutions introduced into the bladder, such as bichloride, carbolic, etc. Then the congestion incident to cold, or concentrated urine, and finally, the congestion due to inflammations in structures near the bladder, as in tubal disease in women. All these factors act as predisposing causes in the production of cystitis. Without these predisposing causes, bacteria can pass through the bladder without doing appreciable harm.

For practical purposes cystitis may be classed as acute and chronic, and these differ from one another only in intensity of symptoms. Tuberculous cystitis stands in a class rather by itself and had best be considered alone. A chronic cystitis may at any time become acute, last for a while in the acute form and then gradually subside to the old chronic state.

The cardinal symptoms of cystitis are strangury, pain and pus in the urine, though as the acute stage subsides the first two symptoms abate. In the very acute stage the increased frequency is present day and night. Pain may be present before, during or at the end of micturition, or at all three times. It may be located above the symphysis, in the perineum or at the end of the penis. The bladder is sensitive, so that a sudden movement, pressure or jarring may elicit pain. The three-glass test shows pus in all three glasses, the largest amount being found in the last urine voided. Here of course the kidneys and ureters must be eliminated as the source of the pus. Sometimes this can be done only by the help of the cystoscope and the catheterization of the ureters. The reaction of the urine cannot in any case be taken as a guide, for we find the urine now acid, now alkaline, depending on the nature of the infecting organism. In colon infections, for instance, it is acid, while in infections with diplococcus ureæ liquefaciens, it is alkaline. In the severer forms of acute cystitis, a few

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drops of blood may be squeezed from the much congested mucous membrane at the end of micturition. Microscopic blood is often present in the urine. In cystitis accompanying foreign bodies in the bladder, or in that associated with both benign and malignant growths, the blood is in greater amount. In chronic cystitis the above symptoms are present in a lessened degree. Frequency may be little above normal. The bladder is not as distensible as normal, and any attempt to hold the urine may cause pain. This of course is not true in the atonic, dilated bladders associated with chronic urinary obstruction. In women there is a form of chronic inflammation affecting chiefly the trigonum, as shown by increased redness, congested vessels and more or less edema. The urine shows a very small amount of pus, but the patient complains persistently of pain on attempting to hold the urine, of increased day and night frequency, and, worst of all, of an indescribable full feeling and distress in the base of the bladder and the urethra.

The pathological changes that take place in acute cystitis are similar to those that take place in other infected mucous membranes. There is congestion and edema. The surface epithelium soon desquamates and the luster of the normal state is lost. Pus is thrown off in greater or less abundance, depending on the intensity of the inflammation. Slight hemorrhage may take place from the intensely congested surface. Small abscesses may form in the mucous membrane and, breaking down, leave ulcers. If the process continues, the mucosa becomes gangrenous and the musculature becomes involved. In chronic cystitis where the involvement has been great enough, the bladder wall becomes enormously thickened and the bladder capacity reduced to a few cubic centimeters. The mucous membrane lacks luster and is chronically thickened. In certain cases the bladder wall, particularly the trigonum, is covered with vesicles, some as large as a pea. This has been spoken of as "edema bullosum." I have noticed it particularly well marked in a case of mixed B. coli and streptococcus infection. There is an hypertrophy of the muscle bundles of the bladder wall resulting in a trabeculation as seen by the cystoscope. Ulcerations may or may not be present. Pus is always present, sometimes in large amount. The urine may be thick and ropy and very foul smelling. This is more apt to be true in the chronic cystitis accompanying vesicle calculus or tumor growth.

The diagnosis of acute cystitis rests, first, on finding the cardinal symptoms, strangury, pain and pus in the urine. The three-glass test will help locate the source of the pus above the urethra. Pain in kidney involvement is generally high in the flank and along the ribs. Finally, a cystoscopic examination may be necessary to locate the exact source of the trouble and the underlying cause. The diagnosis of chronic cystitis differs very little from that of the acute form, except that in the more chronic type, the bladder being much less sensitive, the cystoscope can be used more easily in determining the condition.

The treatment of cystitis aims first at removing the underlying cause. A stone should be removed, a tight stricture dilated, a new growth attacked or an enlarged prostate operated on. If the infection is coming from the kidney, that should, of course, be properly treated. Treatment of the inflammation *per se* varies somewhat with its acuteness. In the very acute stage rest is imperative; the bladder should be flushed by the ingestion of large amounts of water or some demulcent such as flaxseed tea. Either the acetate or citrate of potash may help in increasing the output of urine. To lessen the growth of the infecting organism, I can see no harm in the administration of hexamethylintetramin in moderate doses. Large doses are apt to increase the bladder irritability. The strangury should be relieved by suppositories of belladonna and opium, or by hyoscyamus taken internally. Hot rectal injections may also help. The bladder mucosa may be treated directly by irrigations or instillations. The former can be given by injecting the solution used (either boric acid or saline) directly into the penis with force sufficient to overcome the resistance of the compressor muscle, or by the help of a soft rubber catheter introduced into the bladder. The amount of solution should not be sufficient to distend the bladder and cause pain. For instillations, argyrol and protargol in 10% solution are most often used. The bladder should be emptied and a few drops of argyrol or protargol injected with a deep urethral syringe. When the acute stage has subsided, silver nitrate in ½% solution will probably be found more effective, though it has the decided objection of causing pain. Irrigations may be given once or twice daily; the instillations, every other day. For chronic cystitis irrigations with silver nitrate solution in strengths varying from 1 to 2,000 to 1 to 500, depending upon the susceptibility of the patient, will be found most effective. These irrigations should be preceded by boric solution (4%), used until the solution returned is clear. They can usually be given every third or fourth day. In certain cases of chronic cystitis permanent drainage is advisable and can be gotten in men by tying a soft rubber catheter into the bladder or by making a suprapubic or perineal opening. In women drainage can be had conveniently through a vesico-vaginal opening. The treatment of bladder infections by vaccines is apt to be discouraging, though some cases seem to be benefited. In the case of mixed colon and streptococcus infection already referred to, I feel certain that the streptococcus was eliminated from the urine by the administration of the autogenous vaccine. The colon bacillus seems to be particularly resistant. I have known vaccines to be administered over long periods in such cases without the slightest results.

Bladder tuberculosis is the result of infection of the bladder mucosa with the tubercle bacillus. Primary infection is certainly rare, so rare that its very existence is denied by many men. The

well-known existence of small unrecognized foci of infection in the body is so common that it is quite likely that vesical tuberculosis always comes as a secondary deposit. The infection may come in three ways: first, as an extension downward from the kidneys; second, as part of an infection of the vesicles, epididymis and prostate; and third, through the blood from some other focus in the body. That the bladder may become infected by bacilli excreted by the kidneys while the kidneys themselves remain healthy is highly probable.

The lesions formed are characteristic of tuberculous lesions elsewhere. Small grayish tubercles appear, that finally coalesce, become caseous, break down in the center to form ragged ulcers with undermined edges. The location of the lesions varies. Where the infection is a descending one, the tubercles first appear in front of one or both ureteral orifices. In such cases the deepest ulcerations are likely to be found in the same location. The symptoms of bladder tuberculosis are increased frequency, pain and vesical tenesmus. As the condition progresses, blood and pus appear. Where the condition is secondary to a breaking down focus in the kidney, blood and pus are of course present from the beginning. The severity of the symptoms is variable, but as a rule, as the disease advances, there is intense pain when the bladder becomes at all distended, a constant desire to urinate, and a most distressing violent tenesmus at the end of micturition. Lesions located near the neck of the bladder give the severest symptoms. Lesions confined to the kidney alone may give symptoms identical with the above and it is here that the cystoscope is of so much value in locating the source of the trouble. The tubercle bacillus can generally be found, but the mere finding of it does not help us to decide what part of the urinary tract is infected. In fact, it has been conclusively demonstrated that the bacillus can be excreted through the kidney, and recovered in the urine, without producing the slightest lesion.

The treatment of bladder tuberculosis consists in general hygienic measures, local applications and operative procedures. Just as in tuberculosis elsewhere, plenty of fresh air and a superabundance of nourishing food are indispensable. Of topical applications, instillations of small amounts of bichloride solution varying in strength from 1 to 20,000 to 1 to 10,000, the application of strong silver nitrate directly to the ulcerated areas, or the use of 3% thallin sulphate solution as an irrigation, are recommended. In women I have seen good result from irrigating the bladder with bichloride solution, gradually increasing in strength from 1 to 40,000 up to 1 to 10,000. The operative procedures aim first at eliminating the main source of infection, where that happens to be the kidney. If one organ alone is involved, nephrectomy will often be followed by an entire and speedy healing of all lesions in the bladder, and this will usually take place whether the ureter has been removed or not. In women when the bladder has been much contracted and very badly ulcerated, and the symptoms correspondingly severe, I have found it necessary to put the bladder at rest by making a vesico-vaginal opening before it was possible to locate the exact source of the infection. In men, the same result can be obtained by means of either a suprapubic or perineal opening. Curetting of ulcerated areas has been recommended but is of doubtful benefit. For relief of symptoms, injections of tuberculin may prove useful.

There are three other conditions in which the source of pus can be traced directly to the bladder. I refer first to that in which an abscess in a neighboring organ or in the tissues surrounding the bladder ruptures into that viscus; second, to the rupture of a suppurating ovarian cyst (almost always a dermoid) into the bladder; and third, to suppuration in a diverticulum. The first two accidents are preceded by signs of inflammation in the pelvis or in the structures near the bladder. After a time there is a profuse and persistent discharge of pus with the urine. In case of a ruptured dermoid, bits of bone, hair and teeth may come with the pus. A diagnosis can be made with the cystoscope, when the opening from the abscess cavity can be readily seen. The treatment of these conditions is the cure of the external focus of suppuration. If that happens to be either a pelvic organ or an ovarian cyst, it can be removed, the edges of the opening into the bladder pared and the opening sutured. If the abscess occurs in the cellular tissues, counter-drainage will generally effect a cure.

Of the two types of diverticuli, congenital and acquired, the former is much the more important in our consideration of the sources of pus from the bladder. Acquired diverticuli are the result of increased intravesical pressure, as in tight stricture or prostatic hypertrophy. They are apt to be multiple and of varying degrees of depth. They are really protrusions outward of the mucous membrane between the interlacing muscle bundles of the bladder wall. As seen by the cystoscope, the openings into them are wide, not sharply defined and the farthest wall can generally be made out. Infection in them is practically part of an infection in the rest of the bladder wall, and the treatment that of the general bladder condition.

Congenital diverticuli, on the other hand, are sac-like protrusions of the entire bladder wall. They are apt to be single, of different sizes, some even having a greater capacity than the bladder itself. As seen with the cystoscope, the openings into them are comparatively small, round or oval, and the edges sharply defined. The most characteristic symptom is the sudden refilling of the bladder after it has been emptied with a catheter. Although these diverticuli may exist for years without giving symptoms, the urinary stasis in them invites infection. Salts may be deposited and stone form. The cystoscope is the most reliable means of diagnosis. Where infection does occur, the constant outpouring of pus gives rise to an intractable cystitis. The most rational mode of treatment is the exci-

sion of the sac and the suture of the bladder wall.

In conclusion, I would like to impress upon my hearers that cystitis is generally a symptom. Its proper and successful treatment rests in the main on finding and removing the ultimate cause.

SUPPURATIVE LESIONS OF THE KIDNEY AND URETER.*

BY O. C. SMITH, M.D., HARTFORD, CONN.

THE study of renal infections is most interesting and the subject one of great practical importance. Such infections, with their disastrous results, have been observed and noted by numbers of workers from the earliest time of medical literature. Hippocrates and Galen wrote upon the subject, and Aretäus was the first to distinguish between acute and chronic suppuration of the kidneys, and to describe the cerebral symptoms which develop as the result of suppression of urine. Friedrich Hoffmann, in 1761, was the earliest to classify the suppurations according to their source, while Traube, in the *Berliner klinische Wochenschrift*, 1864, was the first to establish the fact of the entrance of micro-organisms into the renal tract. Rudolf Virchow then paved the way for the later illumination of the subject by his investigations on embolism and metastasis, while the first demonstration of micro-organisms in the kidney structure was made by Waldyer and Klebs. Lister's studies of bacteriology, associated with the repair of wounds, and Koch's investigations, with the technic which he developed, settled the truth of the etiological relationship of pathogenic organisms to the suppuration of the kidneys. As a result of these investigations and discoveries, the pathology, mode of invasion and lines of treatment have during the past twenty years been placed upon a firm scientific basis.

The conception of the earlier observers was that the vast majority of suppurative lesions of the kidney were the result of upward extension of diseased processes from below. The mechanical explanation seemed clear; a bacteriological factor was not needed to account for such lesions. Prior to the bacteriological era, instances of renal suppuration, unaccounted for by ascending infection, were ascribed to traumatism, irritation of stimulating drugs, exposure to cold, etc. The annual oration before the surgical section of the American Medical Association this year, delivered by Dr. George Emerson Brewer, and entitled, "The Present State of Our Knowledge of Acute Renal Infections," contained a review of the experimental research into the conditions which determine the onset and course of these infections, accompanied by a report of a large number of animal experiments, conducted under his direction by Dr. John C. Vaughn at the surgical research laboratory of the College of Physicians and Surgeons, New York. From this historical review we learn that in 1890 Guyon and Albarran demonstrated that the injection into the healthy bladder of pathogenic organisms failed to produce demonstrable lesions in the ureters or kidneys. Ligation of the urethra, causing complete urinary retention within the bladder following these injections, resulted in acute inflammatory processes in the bladder, followed by infection of the renal pelvis and parenchyma of the kidney. Zemblinoff explained the ascent from the bladder to the kidneys of these organisms by reversed ureteral peristalsis. Later, Guyon and Albarran disproved this theory by experiments consisting of introducing colored particles of vegetable charcoal, accompanied by bacteria, into the bladder, with ligation of the urethra. The colored charcoal particles were not found in the renal pelvis until forty-eight hours later, while the bacteria were demonstrable in from three to twelve hours, the authors ascribing this rapid ascent to the motility of the organisms. Albarran, in 1899, reviewing the subject of ascending infections, stated that the conditions necessary for this were urinary retention, impairment of the normal sphincteric action of the ureteral orifice, with forceful vesical contractions, caused by cystitis or stone. The frequency of renal infection as compared with the rarity of the above conditions led Albarran to the belief that the majority of renal infections were transmitted from the blood stream. These findings were confirmed by Israel in 1901, who called attention to the greater frequency of ascending infections in men, by reason of their proneness to urethral stricture and prostatic enlargement. Jacobelli, in 1902, was perhaps the first to experiment with stasis produced in the kidney by ligating one ureter. Bladders of animals injected with micro-organisms with the ureter ligated for twenty-four hours and then released, led twelve days later to suppurative nephritis. L. F. Stewart, of Philadelphia, published in the Bulletin of the University of Pennsylvania, July and August, 1910, a series of experiments in intestinal transplantation of the ureters, the distal ends of the ureters being supplemented by arteries taken from other animals, thus preventing contraction or obstruction of the distal ends. Prompt renal infection occurred, and in a number of instances the infection was carried directly to the perirenal structures, apparently through the lymphatics. Dr. Brewer proved experimentally that a kidney damaged by trauma or disease is susceptible to ascending infection, without urinary retention or other causative factors than an infected bladder. He concludes that ascending infection is responsible for a certain proportion of the acute surgical infections of the kidney, and that in a great majority of such ascending infections the infectious material reaches the kidney by a reflux of contaminated urine into the ureter and renal pelvis, passing the ureteral orifice as a result of damage or interference with its protective mechanism.

Foremost in experimental research work in demonstrating hematogenic infections of the kidney was Lannelongue, who had noted seven fatal cases of renal infection following osteomye-

* Read at a meeting of the New England Branch of the American Urological Association, Nov. 28, 1911.

litis. Then came Albarran, in 1899, whose experiments demonstrated that micro-organisms, under normal conditions, may be eliminated through the kidneys without infecting the organs. On the other hand, their presence in the urine may give rise to a glomerular nephritis, to non-pyogenic and pyogenic infarcts, to multiple abscesses and the further train of pathology which comes with infection. The predisposing cause to the infection he gave as excessive functional activity, the presence of toxic products and renal retention. These investigations have been corroborated by Pernice and Scagliosi, in *Virchow's Archives*. Israel, in 1891, pointed out that renal suppurations follow comparatively mild infections, as furuncles and carbuncles, and later Jordan reported twelve cases of renal infections due to insignificant peripheral lesions. A little later, Israel, Simon and others called attention to the significant and hopeful fact that these hematogenic infections were frequently unilateral, and when so might be successfully treated surgically. This important clinical knowledge was further amplified as cystoscopy and ureteral catheterization became practicable. In a review of the sixteen experiments made by Brewer to demonstrate the possibilities of hematogenic infection, none of the control animals which had been injected with pathogenic bacteria into the circulation without other injury developed kidney infection; of the sixteen animals which in addition to inoculation received a trauma to one kidney, five showed only hyperemia and parenchymatous degeneration, two of which died. Of the remaining eleven, all developed distinct surgical lesions of the kidney. In but three of these were the lesions bilateral. Experiments in lowering the resistance of the kidney by production of anemia led to the conclusion that with such lowered resistance a kidney is more susceptible to an infection. It is on such conclusive experimental research work as the foregoing that our knowledge of these infections and its practical application in the way of treatment rests to-day.

Renal tuberculosis, syphilis, glanders, actinomycosis and leprosy are pathologic entities, each having its own chapter, and do not enter into our discussion at the present time. Suppurative lesions, caused by common pyogenic micro-organisms, as the colon bacillus, staphylococcus pyogenes aureus, streptococcus aureus, proteus vulgaris, pneumococcus, typhoid bacillus, gonococcus, all give rise to suppurative lesions which come within the scope of our discussion, and, according to Watson and Cunningham, occur in the order of frequency above named. In a given case of renal infection from pyogenic micro-organisms, one or another of the above types may predominate, but as a rule a mixed infection will be found. When we consider that the discharge of urine from the kidney is largely determined by circulatory conditions, and that the circulatory status is controlled by the blood pressure, which rises and falls as a result of numerous causes, as well as the marked and shifting influence of the sympathetic nervous system upon the vasodilators and vaso-constrictors, and, in addition to this sensitive mechanism, there is always a possibility of mechanical obstruction below the kidney pelvis, from ureteral pressure, kink or stricture, and also from prostatic and urethral stenosis, — when we consider all these factors, which tend to lower the resistance of the kidney and produce stasis, we marvel that infections are not of more frequent occurrence, and as a matter of fact, they are unquestionably of greater frequency than is generally believed or taught, or found in general medical literature.

Resultant conditions arising from these infections are classified by Adami and Nicholls as follows: embolic abscesses; pyelonephritis; pyonephrosis; traumatic nephritis; and nephritis *per extensionem*. The routes or methods of incidence of these infections may be one of four: first, by the blood stream, or hematogenic; second, through the urinary tubules, or ascending infection; third, by infection introduced from without, as in renal wounds; and fourth, suppurative nephritis *per extensionem*, as an extension of inflammatory processes from adjacent organs or parts. Of these four methods, that arising from the blood stream is the most common, and that from the lower urinary tract is next in importance.

As we have seen, with the advent of our knowledge of bacteriology came the recognition of the fact that the kidneys and other organs could be infected by the blood stream. That such was the most common cause of renal infection was not recognized until comparatively recent years. Were both kidneys of equal resistance, neither having been traumatized, diseased or displaced, bilateral infection from the blood stream would be the rule, but as pointed out by Simon, Israel and others, such is not the case. In a majority of instances the disease is primarily unilateral. The entrance of micro-organisms into one of both kidneys is usually the result or sequel or some suppurative process elsewhere, and that before a general septicemia exists. The septic organisms may enter the kidney singly, in groups or in distinct emboli. If the organism is active and virulent, and the resistance of the kidney and the individual lowered, an acute parenchymatous inflammation develops with abscess formation. This focus may become encapsulated, or may break away and become diffuse. The condition may not be apparent from urine examination for some time after the receipt of the infection, as the pus may not at once find its way into the calices, and the small quantity of urine secreted by the infected kidney is largely diluted with that from the well kidney, so that the mixed urine shows a small amount of pathology. Multiple foci may develop, and with it frequently the other kidney may become involved. These abscesses may be very minute, and equidistant upon the cortex, this arrangement suggesting the embolic nature of the lesion. Abscesses resulting from ascending infection as a rule are collected in groups, separated by areas of compara-

tively healthy tissue, corresponding to clusters of papillary tubules.

Infection through the urinary tubules occurs by the micro-organisms entering the kidney from the urine, known as ascending infection, the condition originating in infection of the lower urinary tract, and in most instances supplemented by obstructive lesions, as from urethral stricture or enlarged prostate, with impairment of the ureteral sphincter. Decomposing urine is dammed back, the pelvis of the kidney becomes dilated and infected, sooner or later damaging the kidney structure by the distribution of toxins and the growth of pathogenic organisms within the kidney. In this way suppurative pyelitis, later pyelonephritis, and, with complete destruction of the renal parenchyma, pyonephrosis, results. The capsule may become greatly thickened, and the contained pus may become inspissated, with development of calculi, or the capsule may break down, become infiltrated with pus which extravasates into the surrounding tissue, with the production of a paranephritic abscess, which is usually, as it extends rapidly, a single and large one.

The third type of infection, that of wound incidence, is less frequent, and of obvious cause and effect relationship.

The fourth type, also less frequent, is that of extension of infection from some adjacent organ from the abdominal or thoracic cavities, the fatty capsule being invaded, and later the kidney. The appearance of the kidney, and the condition it manifests to the sense of touch in these various stages and degrees of infection, is a practical and important study in surgical pathology, with direct bearing upon operative procedures. In a case of hematogenic infection, the appearance of the kidney is as follows: As one approaches the renal fat, it may be found edematous, with some clear fluid exuding. The infected kidney is usually swollen, and if the process is not too recent the capsule is readily removed. "The surface may be irregular, and while the kidney will be paler than normal, small abscesses may be discovered as minute elevations of an opaque, yellowish-white color, surrounded by a congested or hemorrhagic zone." (Adami and Nicholls.) Bisecting the kidney will usually reveal multiple abscesses which may involve the cortex only, or may include the medulla. The kidney affected by ascending infection, which is likely to have been a slower process, is more likely to be surrounded by adhesions. The organ is soft and edematous, with indurated areas marking the thickened capsule and cortex, nature's efforts at walling off infection. In the cortex may be found areas of globular shape upon the inner clusters. On sectioning, yellow streaks are detected in the pyramids, extending into the cortex, these streaks arising from inflammatory products which have accumulated in the tubules and lymphatics. Later, the gross lesions may be more apparent, the abscesses attaining considerable size, with thickened and fluctuating areas. From a study of these appearances, taken in connection with the condition of the patient, we may determine our procedure as to nephrotomy or nephrectomy in individual cases.

Symptomatology. — The train of symptoms which follow the entrance of pathogenic organisms into the kidneys and ureters vary in accordance with the type of the organism, the mild or severe character of the infection, the resistance of the kidney and of the individual. Such infections, occurring during the incidence of similar inflammations of other organisms, may make but a slight impression upon the clinical picture, and may quite likely be overlooked. If the concomitant malady is not producing constitutional symptoms, the invasion of the kidney by micro-organisms from the blood stream is usually accompanied by the constitutional syndrome of other acute infectious processes, including chills, fever, frequent pulse, general malaise, headache, backache, anorexia, nausea and vomiting, accompanied or followed by pain in the region of one or both kidneys, and tenderness at one or both costo-vertebral angles, usually with frequency of micturition and dysuria. The kidney, with its rich vascular and nerve supply, causes sharp reaction when infected. The symptoms are decidedly variable, the chills are irregular and fever fluctuating. There is no definite course to differentiate it from other infections. Objectively there is increased leucocytosis and a fairly high polymorphonuclear count in individuals of good resistance. The urine is diminished and acid. It may or may not at a given time contain pus, this depending upon the location in the kidney of the emboli or infective focus. Microscopic blood, renal epithelium, bacteria, at times casts, form the characteristic picture. The urine may be clear and contain but little albumin and be of normal specific gravity and so be passed over by the casual observer as negative. Hence the great importance of a microscopic examination of the catheterized centrifugalized specimen. Later in the hematogenic infection, large abscesses form and discharge into the calices and pelvis of the kidney. Considerable amounts of pus, intermittent in incidence, may be present, such pus settling slowly after the urine is voided.

The symptoms of *ascending* infection may be of sudden or of gradual onset, may be mild or severe. They are more likely to guide us to correct conclusions and diagnoses than the hematogenic, because of previous inflammation of the bladder and urethra. The lower infection may have been in existence for a considerable time, when suddenly the train of symptoms described in the foregoing type are manifest. The symptoms may come on as a climax to a long suppurative and obstructive process of the lower tract, and be rapidly followed by anuria, toxemia and death, or the chills may be severe, the temperature high, with gradual subsidence of symptoms, following appropriate treatment and the removal of the causes of obstruction. The urine of this type is more frequently alkaline, contains quantities of bacteria and pus, which settle rapidly in the container. In chronic forms of as-

cending infection, with dilated ureteral orifices and renal pelves, a tolerance may become established and the symptoms intermittent and mild in character, but such an individual is in constant danger of sudden extension of the disease and calamity.

Diagnosis. — Acute renal or ureteral infection must be considered in all cases of marked constitutional disturbance where the cause of such symptoms is not apparent. Malaria, cold, grippe and threatened pneumonia, pleurisy, appendicitis, cholecystitis and other acute infections are diagnosed when the cause lies in the renal tract. Such errors in diagnosis are common, and particularly unfortunate when proper treatment for the renal lesion is delayed, and worse, when radical surgery is performed upon innocent organs, with the added danger of anesthesia, hemorrhage and shock. The lungs and heart are carefully examined by nearly every practitioner, but how frequently are the kidneys overlooked, and not palpated or considered, the history of frequency and dysuria disregarded, and the urine either carelessly examined or not at all! If added to the symptoms of an acute infectious invasion we have renal or ureteral pain, accompanied by tenderness at the costo-vertebral angle, with or without palpable enlargement of the kidneys, our suspicion should be aroused, and a searching examination of the urine at once be made. Frequently these findings will establish beyond a doubt the true seat of the infection. The cystoscope, urinary segregation, separate urine examination and renal function test, while usually demanded in chronic renal infection, may or may not be wise and desirable in the more acute type. Barring prohibitive contra-indications, however, the carrying out of these procedures, one or all of them, is to be desired, for we cannot know too much of the existing conditions; furthermore, these methods provide us with the vitally essential information which should precede all renal surgery: first, the presence of both or of but one kidney; second, if two kidneys and two ureters exist, whether both or one are affected; and lastly, whether the better kidney can be expected to functionate sufficiently to render removal of one safe. The absence of this knowledge leads to sad results.

Prognosis. — There can be no fixed rules to govern our predictions of recovery or otherwise in these cases. The outcome depends upon a number of factors, such as the virulence of the infection, the resistance of the individual, the presence or absence of previous renal lesions, the stage at which treatment is instituted and surgical relief afforded in the type which demands it.

Treatment. — Preventive measures of suppurative renal infections are important. Hematogenous infections may be precipitated by too zealous treatment of other suppurative foci, which may cause distribution of micro-organisms or emboli into the circulation, as scraping of abscess cavities, curetting rather than excising a carbuncle, breaking down protective walls of exudate, curetting an infected uterus, a procedure so frequently followed by severe reaction and metastatic infection. Flushing the kidneys with quantities of water during all infections, and relieving the kidney function by stimulation of the emuncteries, are measures in the line of prophylaxis. In the *ascending* infections the prime prophylactic measures are the relief of obstructive lesions and preserving a clean bladder, the treatment of urethral strictures, removal of obstructing prostates, and copious flushing, and the use of urinary antiseptics, of which urotropin is the type. Palliative or medical treatment consists in acute cases in an antiphlogistic régime. The primary source of infection should be dealt with by flushing of the renal tract, and urinary antiseptics should be administered. In cases not yielding to such measures surgical procedures are to be considered. In chronic catarrhal lesions of the ureters, pelvis and kidneys, rest, urinary antiseptics, stimulation of emuncteries, together with the preparation of an autogenous vaccine and its administration by one skilled in this line of therapy are the measures other than surgical to be applied.

Surgery of the kidney. — A complete discussion of the indications for surgical treatment in the different types of suppurative lesions of the kidney, with the technic of such operations, would carry this address to too great length. Briefly, it may be stated that the indications for surgical interference are: the undoubted evidence of suppurative infection, as noted by the urinary changes, the general symptomatology, with swelling of one kidney, and tenderness at the costo-vertebral angle. The two procedures to be considered are (*a*) nephrotomy, consisting of exposing the kidney, stripping the capsule, sufficient exploratory incision to determine the extent of its pathology, and drainage, or (*b*) nephrectomy. The decision for one or the other procedure cannot be determined in all instances until the time of exploration. At that time the extent of involvement, the readiness with which the kidney may be removed, the amount of functionating renal tissue intact, the general condition of the patient and the knowledge or lack of knowledge of the functionating capacity of the other kidney will determine our course of action. In cases of diffuse, acute hematogenous infection, Brewer's statistics would seem to indicate the greater safety of nephrectomy. Of five nephrotomies, but one patient lived, while but one died following seven nephrectomies. Incision and drainage in this type of diffuse infection is quite likely to fail to reach all foci. With large single collections of pus, the amount of functionating tissue remaining in the kidney would determine largely the choice between nephrectomy and nephrotomy. If bilateral infection exists, unaccompanied by a general septicemia of which the renal infection is a part, it may call for incision and drainage of both kidneys, which Watson states in his experience is less dangerous than leaving untouched a suppurative process in the second kidney.

Some points in operative technic which have impressed the speaker. — First, as to anesthesia.

As it is proven that both chloroform and ether may have a deleterious or destructive effect upon the hepatic and renal cells, some substitute in operations upon serious renal infections is desirable. During the past five years we have employed gas-oxygen anesthesia, preceded by the use of morphine and atropine or morphine and scopolamine. Our present method is to administer gas-oxygen and a very small amount of ether, if necessary, by the apparatus of Gatch. We have employed spinal anesthesia a few times successfully, and occasionally local infiltration analgesia. We are convinced that a large amount of ether given to these bad surgical risks increases the danger of immediate and remote fatality. The lumbar incision is employed except in instances of such enlarged kidneys that a transperitoneal opening is demanded. The ilio-inguinal and ilio-hypogastric nerves are to be avoided, as their section gives rise to atrophy, discomfort and possibly hernia. A blunt probe-pointed exploring needle, attached to a good syringe, is the most desirable way of exploring the deep regions of the kidney. If bisection of the kidney is performed, and union of the halves is to be accomplished, the method suggested by Moore, of Minneapolis, of carrying the catgut suture around kidney transversely, rather than puncturing its parenchyma, is desirable. The importance of remembering the possibility of anomalous vessels, and of cutting nothing in the pedicle until it is safely clamped and ligated, is to be emphasized. The use is advised of right-angled clamps on the pedicle, with detachable handles which may be left *in situ*, if there is any question of the security of the ligature, for the majority of calamities in nephrectomy are due to hemorrhage. Free drainage, in both nephrectomy and nephrotomy, with the avoidance of too closely suturing the lumbar incision, is necessary, as copious extravasation of serum and exudate in the one and urine in the other may be anticipated, and hernia is unlikely to follow if the nerves have been avoided.

Out of 88 operations upon the kidney in the author's experience, 15 operations, or 17%, have been for renal infections other than tuberculosis. The infections exclusive of tuberculosis and calculi were as follows:

	Operation.	No.	Re-covered.	Died.
Pyonephrosis with mixed infection,	Nephrectomy.	4	4	
Pyonephrosis with mixed infection,	Nephrotomy.	1	1	
Pyelonephritis, mixed infection,	Nephrotomy.	1	1	
Mixed infection caused by nephrolithiasis,	Nephrectomy.	1		1
Mixed infection of undetermined pathology,	Nephrotomy.	1	1	
Drainage of renal abscess for hematogenous infection,	Nephrotomy.	1	1	
Hematogenous infection occurring with cholecystitis,	Nephrotomy.	1	1	
Drainage for hematogenous infection of unknown pathology,	Nephrotomy.	1	1	
Stripping of capsule and drainage following Neisserian infection,	Nephrotomy.	1	1	
Retention and infection caused by carcinoma of prostate,	Nephrotomy.	1	1	
Mixed infection with tuberculosis,	Nephrectomy.	1	1	
Pyonephrosis following Neisserian infection,	Nephrectomy.	1	1	
Pyelitis,	Nephrotomy.	1	1	

Conclusions. — The speaker wishes to emphasize the fact that suppurative lesions of the kidney are of common occurrence; that we have only recently become convinced of this fact, and of their importance; that the profession should be more alert in the discovery and diagnosis and prompt treatment of this condition; that accurate diagnostic methods are called for, and that one dealing with such a case should not rest until a searching analysis of the urine has been made, and every means to determine a correct diagnosis employed; that in cases not yielding to palliative and medicinal measures, where contra-indications do not exist, prompt and efficient surgery, guarded by the practice of every method that makes for safety, should be employed; and that, in so far as it is possible, surgery should be preceded by an accurate determination of the kidney function of both kidneys. It is gratifying and inspiring to consider the vast improvement in results in the surgical treatment of this grave class of infections.

Clinical Department.

THREE UNUSUAL CASES OF APPENDICITIS.

BY GEORGE W. MORSE, M.D.,

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CASE I. A vermiform appendix of unusual size and shape.

In a recent issue of the *Journal of the American Medical Association*, Noble reported a cystic appendix vermiformis which measured 7¾ by 5¾ inches. On Dec. 20, 1911, I had the opportunity of operating on a similar case. Although this appendix was only 5½ inches long and 3 inches in diameter when removed, it was so unlike any of the acute inflammatory types usually met with that even after the abdomen was opened, and the appendix brought into view, it was difficult to recognize it as such, and the operation was considerably prolonged owing to the inability of the operator to determine the nature of the white, fibrous tumor which presented.

On Dec. 20, 1911, M. C., forty-seven, married, peddler by occupation, walked into the Accident Room of the Massachusetts General Hospital complain-

ing of pain and soreness of five days' duration in the right lower quadrant of his abdomen.

Past history. — Patient had suffered for fifteen years with "indigestion," characterized by distress and occasional vomiting after meals, but gave no history indicative of an organic lesion of the stomach or duodenum. He had had no previous attacks similar to the present and had always been strong and well. Bowels always regular. No pulmonary or urinary symptoms.

Present illness. — Five days previous to entrance patient was seized with severe cramp-like pain in the right lower quadrant of his abdomen. This pain had persisted since with varying degrees of severity, necessitating rest in bed. Patient vomited three times during the twenty-four hours before coming to the hospital. His bowels had moved well a few hours before.

Physical examination. — Patient a well-developed and obese man, who looked sick but lay flat on examining table with no evident pain or discomfort.

The pupils were equal, circular and reacted normally to light and distance. Teeth fair. Tongue covered with thick white coat. Breath offensive. Throat not remarkable. No adenopathy.

Heart and lungs not remarkable.

Abdomen full, tympanitic and soft throughout, except in right lower quadrant, where there was an indefinite, rounded, tender mass, the size of a man's fist, guarded by moderate muscular spasm.

Rectal examination revealed a firm, tender mass in the right side of the pelvis.

Temperature, 102.4. Pulse, 94. Respiration, 28. White cells, 18,000.

Physical examination otherwise negative.

The diagnosis of appendix abscess was made and patient was prepared for immediate operation.

Operation. — Dorsal position. Ether anesthesia. Four-inch, split, right rectus incision. Peritoneum opened with escape of a small amount of thin, cloudy fluid. Culture taken. Walling off gauzes placed, revealing a white, rounded tumor the size of a man's fist extending from the right iliac fossa over the brim of the pelvis with a conical tip resting against the left pelvic wall. This tumor was rather firm and adherent to the bowel and adjacent parietes by light, friable adhesions. These adhesions were easily broken up and the tumor found to be connected with the cecum. Exploration of the kidneys, liver, gall bladder and stomach revealed nothing abnormal. The wound was enlarged upward to permit the delivery of the tumor. In freeing the tumor from the iliac vessels the finger broke into it, allowing about ℥3 of foul smelling gelatinous fluid to escape. A finger inserted through this opening revealed the fact that it was hollow with walls about ¼ inch thick, and that its lumen communicated with the cecum by a circular opening which admitted the tip of the index finger. The sac wall was then split longitudinally down to the cecum and cut off with the scissors, leaving ¼ inch of its wall as a stump. Owing to the friability of the edges of this opening in the cecum, it was deemed best not to attempt suture, so its edges were held in approximation by the tip of a cigarette wick packed down over it. Walling off gauzes were removed and the wound was closed to the wick with No. 1 chromic catgut. Silkworm gut to skin. Dry dressing. Swath. Patient sent to the ward in good condition.

Convalescence. — Aside from moderate distention during the first four days, patient made an uneventful recovery. Drainage was kept up for ten days, but at no time was there any evidence of fecal discharge. Patient was discharged well on Jan. 9, 1912.

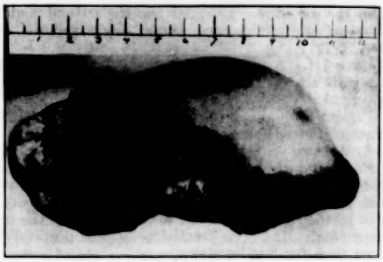
Bacteriological report. — A scum of growth of colon-like bacilli. A few streptococci.

Pathological report. — Specimen hardened in formalin. A sausage-shaped, hollow mass 12 cm. long and 5 cm. in greatest diameter, tapering to a point, with rather thick, fibrous walls. Both surfaces smooth except for a small portion of the outer, where there was a roughened area of attachment.

Microscopical examination showed the wall dense, thick and fibrous, with entire absence of mucous membrane.

Diagnosis: Chronic appendicitis.

The accompanying illustration gives an idea of the appearance of the preserved specimen.



Case II. A gangrenous appendix in an unusual location.

J. A., nineteen, single, stable-boy, was brought into the Accident Room of the Massachusetts General Hospital on Sept. 6, 1911, with the following history:

Past history. — Seven years ago operated on for "abscess of ankle." Two months ago acquired primary lesion of syphilis followed by usual sequelæ. Otherwise always well and strong. No previous similar attacks.

Present illness. — Three days before entrance patient was seized with general abdominal pain, for which he took large doses of castor oil, Epsom salts and milk of magnesia, vomiting each in turn. Since onset, he had been unable to work or sleep, but remained about the stable. As he did not improve under his own treatment he decided to come to the hospital for advice.

Physical examination showed a well-developed, muscular young negro, lying on examining table with knees drawn up, face bathed in a profuse perspiration, hands and feet cold, and at short intervals having attacks of intense abdominal pain.

Pupils normal in shape and reaction. Teeth fair. Tongue, slight white coat. Throat not remarkable. A few hard glands palpable in neck, axillæ and groins. Heart and lungs not remarkable.

Abdomen moderately distended, board-like and tender throughout.

Rectal examination showed marked pelvic tenderness.

Temperature, 101.4. Pulse, 90, poor quality. Respiration, 24. White cells, 15,000.

Patient prepared for immediate operation.

Diagnosis: General peritonitis, probably from perforated appendix.

Operation. — Dorsal position. Ether anesthesia. Three-inch, split, right rectus incision. Peritoneum opened with escape of considerable thick, white pus. Ascending colon presented and was drawn out through wound. The cecum was found to be high up in the

region of the pylorus and could not be drawn down. The abdominal incision was therefore enlarged upward and the region of the pylorus exposed. The appendix was found to be about four inches long, gangrenous throughout, with its tip adherent to the pylorus and its base adherent to the under side of the right lobe of the liver. The distribution of the fibrin in this region showed that there had probably been a localized abscess between the liver and pylorus which had ruptured and caused a general peritonitis. The appendix was removed and three cigarette wicks placed, one to the pylorus, one to the right flank and one to the right side of the pelvis. The wound was closed to the wicks with through-and-through silkworm gut sutures and the patient sent to the ward in very poor condition.

The patient drained profusely for two weeks and then the wicks were removed and the patient had an uneventful convalescence, being discharged well on Oct. 3, 1911.

CASE III. A case of spontaneous perforation of an appendix abscess through the upper abdominal wall in an infant.

Patient brought into the Accident Room of the Massachusetts General Hospital, Feb. 5, 1912.

A. W., two years old.

Past history. — Normal delivery, bottle-fed infant who had never been very robust. The mother stated that the child had apparently had frequent attacks of pain in the right side of the abdomen during the previous year. Had been treated at a local hospital for some time for "indigestion."

Present illness. — Four days previous to entrance, mother noticed a "bruise" on child's right upper abdomen near the costal margin. Since then the child had been fretful and looked ill. The child had slept well and had had little pain. Bowels had been regular.

Physical examination showed a well-developed, rather apathetic baby, who looked sick. Physical examination entirely negative except for fluctuant abscess the size of a silver dollar in the right upper abdomen near the junction of the costal margin and anterior axillary line. Further examination was impossible without an anesthetic.

Diagnosis of abscess was made and the child was prepared for immediate operation.

Operation. — Primary ether. Abscess incised by 2-inch incision. About ℥ii of thin brown pus evacuated, followed by a small amount of gas and intestinal contents. Finger inserted into wound showed sinus extending downward into the right iliac fossa, where there was felt a hard inflammatory mass. Rubber tube drain placed in sinus for a distance of two inches.

Convalescence. — During the five days following the operation the discharge from the wound was profuse and fecal in character, the child having no movements by rectum. The tube was then removed and normal movements by rectum began. When discharged from the hospital on March 15, the wound was granulating well with no discharge. The inflammatory mass in the right iliac fossæ had disappeared and the child's general condition was excellent.

THE OPERATIVE TREATMENT OF SPINA BIFIDA, WITH REPORT OF A CASE.

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THE successful treatment of spina bifida consists in the removal of the tumor, without injury to any nerve elements which the sac may contain, and closure of the opening in the vertebra so that there shall be no leakage of spinal fluid and no recurrence of the tumor.

There are three methods which are applicable to the treatment of spina bifida.

1. Injection of the sac with Morton's iodoglycerine solution. This solution consists of iodine 2%, iodide of potassium 6% and glycerine 92%.
2. Ligation of the pedicle.
3. Dissection of the sac, replacing the nerve elements in the spinal canal, and strengthening the covering of the opening in the vertebra.

To make the first method, that of injection, safe, we must be sure that the connection between the sac and the spinal canal is minute, and that the sac contains no portion of the cord or spinal nerves. This method should be placed in the same category with the injection of an astringent solution into the sac of an inguinal hernia.

The ligation method, for the reasons given above, may also be discarded. The neck of the sac may, however, be ligated, after an incision has disclosed the fact that the tumor does not contain any portion of the cord or spinal nerves. The only safe and effective method is that of the open operation.

There are certain cases which are unsuitable for operation, namely, cases where there is marked paralysis, especially of the sphincters, and where the mental condition is defective. Club foot is not a contra-indication to operation, but paralytic conditions do not improve after operation. Very young infants do not stand the operation well.

The prognosis is grave whether the case is operated or not. The London Clinical Society reported 23 cases with 7 deaths, and Boetcher reported 39 cases with 13 deaths within a few days, and 12 more within a few months. This gives an immediate mortality of nearly 33%.

The following case was referred by Dr. Middleton.

Charles S., age thirteen months. His father is a strong, vigorous man, and his mother is fairly strong and has one perfectly healthy child older than this one.

At birth the tumor was about the size of a small egg, and has gradually increased in size, more rapidly in the last few months. The child was nursed at the breast for two weeks, and since that time has been fed largely on condensed milk. He has always been active and bright, but has not walked. He has been obliged to lie in the prone or semi-prone position, on account of the tumor.

Physical examination showed a well-developed and well-nourished child, somewhat anemic. He was bright mentally, and crawled actively about the floor. The head was of the hydrocephalic type, but not markedly so, and the anterior fontanelle was not closed, but

there was no bulging. The calves of both legs seemed a little under-developed, and there was a marked club foot on the left, and a slight degree on the right. The knee-jerks were present. There was a slight flattening of the bridge of the nose which suggested specific disease. A Wassermann test made a few weeks after the operation was negative.

In the middle line of the back, in the lumbar region, was a rounded tumor three and one-half inches in diameter, with a pedicle about two inches in diameter. The covering of the tumor was very thin, and the tumor was translucent. At about the middle of the posterior surface of the tumor was a depression, from which radiating furrows extended to the periphery. The tumor was fluctuant, and pressure on it caused the child to cry out. Near the depression was a shallow, ulcerated spot, the size of a nickel. The tumor was situated at the second lumbar vertebra. No shadows could be seen within the tumor, but the umbilicated appearance made it practically certain that there were nerve elements inside the sac.

The condition was explained to the mother, and a bad prognosis given, whether an operation was done or not, as it seemed as if rupture might occur at any time, so thin was the covering. Operation was advised as giving the child the best chance, small though that chance was.

The operation was done under ether at the Grace Hospital, on Feb. 10, 1912.

The foot of the table was raised, and the child placed with its head low so that intracranial pressure would be maintained. An elliptical incision was made on the posterior surface of the tumor, and the sac dissected down to the neck. The sac was ruptured accidentally, before the dissection was wholly completed. The fluid was allowed to run out slowly, and the neck of the sac was dissected free. On opening the sac numerous small nerves were seen running into the inner wall of the sac. One of the larger nerves was attached at the depressed point, and another, about a quarter of an inch in diameter, was seen entering the sac, adherent to the inner wall, and then going back into the spinal canal. The opening in the vertebra easily admitted the end of the thumb. The nerves were then carefully separated from the sac and replaced in the spinal canal. The sac was cut off and the edges united with a continuous suture of plain catgut. This suture was reinforced with a second. The lumbar fascia was then divided around the opening in the vertebra, and the edges brought together over the opening with a continuous suture of kangaroo tendon. The tension was relieved by the addition of a mattress suture of tendon. The fat was brought together with buried catgut and the skin closed with horsehair sutures. The child was in fair condition.

That evening his temperature was 104°, and there was marked retraction of the head, and considerable spasm of the muscles of the back. The temperature ranged from 102.5° to 104° for the next week, at the end of which time the wound looked well except for a certain amount of swelling. The stitches were removed at this time and the lower angle of the wound opened with a pair of scissors. About an ounce of pus was allowed to run out and the wound irrigated. A drain was inserted, and the cavity irrigated daily thereafter. The muscular spasm gradually disappeared, and the wound healed rapidly. During all this time the child took his nourishment well, vomiting only a few times. His mental condition was excellent, and he gained strength rapidly. There was no paralysis following the operation. Since leaving the writer's care this patient has been etherized twice; once for a club foot operation, and again for a circumcision. His general condition is improving all the time. The accompanying photograph of the patient was obtained through the kindness of Professor Bates of Tufts College Medical School



The following points in regard to the treatment of spina bifida are important.

1. Do not operate if the patient is mentally defective, or if marked paralysis exists.
2. Do not operate on very young babies unless rupture has occurred, or is imminent.
3. Raise the foot of the operating table so that the patient's head will be low, and intracranial pressure maintained.
4. See that the sac is free from nerve elements before ligating the pedicle.
5. A small, temporary drain, down to the lumbar fascia, is advisable.

Reports of Societies.

NEW ENGLAND BRANCH OF THE AMERICAN UROLOGICAL ASSOCIATION.

The fall meeting of the New England Branch of the American Urological Association was held at the Rhode Island Hospital, Providence, on Nov. 28, 1911, President, Dr. Paul Thorndike, Boston; Secretary, Dr. R. F. O'Neil, Boston.

Demonstrations of Specimens.

Dissections of seminal vesicles and prostate.

Dr. Herbert Terry, of Providence, R. I.: Bearing on what I shall have to say of pyuria originating from below the bladder, I have here some dissections showing the prostate and seminal vesicles and the close proximity of the vesicles and ureter.

Also some parts of stones removed from the prostatic urethra of a man from whom a bladder stone was removed three years before by a surgeon in another city. They were broken up in their removal and what I have here represents, I should judge, about one third of the whole mass. Each piece shows a large facet,

PYELONEPHROSIS, CYSTOSCOPY, REMOVAL OF THE KIDNEY BY A TRANSPERITONEAL OPERATION.

DR. J. W. KEEFE, Providence: I wish to show this kidney specimen, although it does not represent the way it looked at the time of removal, for it was then much larger. The history is as follows:

Mrs. D. H. R., sixty-six years old, has borne five children. The family history is negative. She was in good general health until three years ago, when she commenced to complain of painful and frequent micturition. This condition has gradually become more aggravated, until at the present time she finds it difficult to retain the urine for a longer period than one-half hour. She is pale and emaciated and weighs scarcely 90 lb. Five weeks ago she felt a mass in the abdomen to the right of the umbilicus. She consulted Dr. May, the family physician, who referred her to me.

The urine contained albumen, pus and a small amount of blood. A bulging of the abdominal wall can be seen distinctly to the right of the umbilicus with the patient lying upon the back. Palpation reveals a hard spheroid mass about six inches in diameter, which is dull on percussion. This mass is slightly movable and appears to have no connection with the liver.

Operation. — Oct. 3, 1911, ether anesthesia by the drop method. The bladder is contracted and holds but one and one-half ounces of fluid. Cystoscopy with air dilatation of the bladder, on account of the large quantity of pus in the urine. An excellent view was obtained of the interior of the bladder. The mucous membrane was red and inflamed, clear urine was seen to enter the bladder from the left ureter and thick pus from the right ureter. The meatus of the right ureter was red and swollen. A diagnosis of pyelonephrosis was made and the transperitoneal method of removal was selected on account of the size of the distended kidney.

A vertical incision was made through the right rectus muscle and into the abdominal cavity; the center of this incision was about two inches to the right of the umbilicus. The ascending colon was retracted towards the median line, and the peritoneum overlying the kidney was incised and separated from the kidney.

After double clamping the vessels and the ureter, the kidney was removed and the vessels and ureter ligated with chromic gut. The wound in the peritoneum, which had covered the kidney, was sutured and the abdominal wound was closed in layers without drainage. A stab wound was made in the loin and a cigarette drain was passed through this wound into the space which had been formerly occupied by the kidney.

The recovery was unusually free from discomfort, the remaining kidney continuing to functionate as it evidently had been doing for some time. Gradual distention of the bladder by injecting fluid was practiced and in five weeks the bladder held from four to five ounces of fluid and the pain and desire to micturate was much less frequent, although the urine contains a small amount of pus.

I believe that these large kidneys or large growths involving the kidney can be more advantageously removed by the transperitoneal method than through an incision made in the loin.

FOUR KIDNEY SPECIMENS (TUBERCULOSIS, 3; STONE, 1).

DR. O. C. SMITH, of Hartford: It is useless for me to tell you that I appreciate the honor of taking part in this symposium. I am sure all of the members of this Urological Association believe as I do that renal infection — the subject which has been assigned to me — is frequently overlooked, and for that reason, if for no other, I am glad to bring the subject before you for discussion. I am going to take the liberty of presenting to you a few specimens of kidneys which are not entirely germane to my side of the subject. It is certainly true that many patients pass through a number of hands before it is discovered by physical examination and rigid analysis of the urine that a renal lesion exists. These specimens are to illustrate this point.

This specimen, for instance, is from a girl of nineteen years, who had urinary frequency and pain in left renal region, occasionally passed bloody urine and was frequently incapacitated. She was treated at her home for cystitis for a number of months. At the Hartford Hospital tubercle bacilli were found. An indigo-carmine test was made, with the result that the right ureteral orifice ejected the blue colored urine in eight minutes, while from the left there was a delay of thirty minutes. The left ureteral orifice was pouting and inflamed. Left nephrectomy was performed without incident. You will observe in the kidney an extensive tuberculous process. At the end of six months the young woman had gained 15 lb., her symptoms having entirely disappeared.

The second specimen is from an unmarried woman of twenty-five who for three years had suffered from urinary frequency and dysuria. She had been treated during these three years by an excellent gynecologist, who attributed her urinary frequency to pressure upon the bladder from an anteverted uterus. Six months ago she was obliged to give up her occupation of teaching. As in the previous case, cystoscopy, the indigo-carmine test, careful urine analysis and physical examination made clear the diagnosis of right tubercular kidney. You will observe a well-marked tuberculous lesion in this kidney, with a tuberculous calcareous deposit. This patient, subsequent to operation, which was uneventful, was placed upon an antituberculosis régime, and in addition to being entirely relieved of her previous symptoms, she has in the last nine months gained 26 lb., taken on a splendid color, and is apparently well.

The third specimen is a calculous kidney from a woman of forty, who had been ill for ten years with an apparently hopeless neurasthenia. Her family physician discovered a small calculus in her urine, which led to a skiagraph, disclosing the fact of large, multiple calculi in the right kidney. This woman's return to health and a normal useful being has been most gratifying.

The fourth specimen is from a man of forty who, following a Neisserian infection of seven years ago, developed right renal pain, tenderness and pyuria. He had been treated in the South for a number of years for cystitis. Urinary examination revealed tubercle bacilli. The indigo-carmine test resulted in a normal functional activity of the left kidney, with practically entire absence of urinary secretion from the right. Right nephrectomy was easily accomplished, since which time the man has steadily improved, has gained 11 lb. in the past six months, and works daily. His urinations occur at from three- to four-hour intervals, while prior to operation the interval was twenty to thirty minutes. This specimen shows complete destruction of kidney substance.

We fully realize that these patients are in danger of infection of the remaining kidney, and of tuberculous lesions elsewhere in the body, and while the present results are all that could be hoped for, an earlier diagnosis and an earlier operation in each case would have afforded a much better ultimate prognosis.

SARCOMA OF KIDNEY.

Dr. Paul Thorndike: I wish to show an interesting specimen. It is a tumor of the kidney. The patient was a small child (a girl of four) who was brought to the City Hospital in Boston with a diagnosis of "ruptured kidney" following a fall down stairs.

Her first attempts at urination after injury were futile, but within a few hours she did pass considerable bloody urine with a great deal of pain. Examination revealed a mass in the right flank extending well over toward the median line in front and easily palpable. Immediate operation by Dr. G. H. Monks showed this mass to be a kidney, and on investigation the whole of its interior was filled with a soft, granular material which proved to be new growth, a sarcoma, which must have existed for a long time, although there was never the slightest evidence that it was there until the accident happened.

The specimen shows that the kidney substance is almost entirely replaced by new growth.

Demonstration of Instruments.

MODIFICATION OF THE KEYS-ULTZMAN SYRINGE.

Dr. H. Binney showed a modification of the Keys-Ultzmann syringe. The object of this new instrument is to avoid the possibility of the narrow lumen of the ordinary instrument being plugged by rust or other substance difficult to clean out. This modification consists of an outer catheter and an obturator grooved on one side to allow the passage of the fluid. After using the syringe, the obturator is easily withdrawn and in a moment can be cleaned and dried so that rusting will not occur. The preliminary model shown was made by Codman & Shurtleff, Boston.

A MODIFICATION OF THE ORDINARY SOFT RUBBER FEMALE CATHETER.

Dr. H. C. Pitts: In connection with infections of the bladder, I thought this catheter might be of interest. I have often felt that in hospitals the nurses through lack of attention are prone to pass the catheter too far into the bladder in catheterizing, thus producing enough injury to predispose to cystitis. To prevent this I have had the Davol Rubber Company make some catheters with these little stops cemented on to the shafts at the proper distance from the tips. The stops act as good handles to hold by and absolutely prevent the catheter's being introduced too far.

Symposium on Suppurations of the Urinary Tract.

Dr. H. Terry, of Providence, read a paper entitled:

SUPPURATIONS OF THE URETHRA, PROSTATE AND SEMINAL VESICLES.[1]

Dr. H. C. Pitts, of Providence, read a paper entitled:

SUPPURATIONS OF THE URINARY BLADDER.[2]

Dr. O. C. Smith, of Hartford, read a paper entitled:

SUPPURATIVE LESIONS OF THE KIDNEY AND URETER.[3]

DISCUSSION.

Dr. Paul Thorndike: *Gentlemen*, — You have heard the three papers covering the subject of suppurations of the urinary tract. You have heard the reports of a number of interesting cases, and you now have a large subject open to you for discussion. It is a large subject and there are a good many gentlemen who are scheduled to discuss it. I will, therefore, make mention of but one or two points in connection with the treatment of such cases.

In the first place, as to abscess of the prostate: It is true that most abscesses of the prostate break either into the urethra or into the rectum if let alone long enough. It is also true that some of them do not, but break in less fortunate directions. Such abscesses should, therefore, be operated upon as soon as a diagnosis is made, and the operation should be so thoroughly carried out as not only to determine the presence of pus, but to drain it efficiently. The capsule of the prostate should be freely exposed and the incision into the prostate should then be made in such a way as to drain the two lobes of the prostate separately. It has frequently been my experience to find two separate foci of pus and so situated that no single incision would drain them both. I am making these remarks concerning operation for abscess of the prostate, taking it for granted that the diagnosis will be made early enough so that the operation consists of something more than making a simple median incision into the perineum and finding pus pretty close under the skin.

As to collections of pus in the kidney: The more I operate upon kidneys, the harder I find it to get sufficient drainage of the pus cavity, and the more inclined I am, therefore, to sacrifice the whole kidney, even if some small part of it is good functionating tissue, and the less inclined I am to leave that little kidney tissue with its attendant sinus in the loin and its always present possibility of perpetuating a bladder infection. In other words, primary nephrectomy in these cases seems more and more certainly the operation of choice as my experience in this work increases.

Now as to acute infections of the kidney from the blood stream: I have operated upon only three of such cases. In two of them it seemed to me unwise to remove the whole kidney, and in both of these two the patient convalesced rapidly and well. In both cases the kidney was delivered upon the loin, split and thoroughly examined, but in neither case was the infection severe enough to demand nephrectomy. In the third case nephrectomy was done. I should be afraid to leave behind a kidney infected in this way, no matter how slight the apparent infection, without thoroughly opening the kidney to investigate it, but I believe that we are gradually accumulating a knowledge of these cases which will enable us to save many kidneys which are now sacrificed.

Dr. H. Beal, Worcester: I think we are realizing more and more in this branch of medicine, as in so many others, the advantage of early diagnosis, and the opportunity that the instruments which are common now give us to make these diagnoses. The case of Dr. Keefe reminded me of one I had recently, — that of a man twenty-seven years old, who, three years prior to his admission, had a Neisser infection and evidently before that, according to his symptoms, had a pyelitis. He entered the hospital with the history that four weeks before he had noticed a large tumor in the right side of the abdomen. The tumor was easily seen when the patient was lying on his back, was easily palpable below the ribs, was slightly elastic, not especially tender, measured four or five inches in width, and extended nearly to the umbilicus. The cystoscope showed on the left side a practically normal urine, and pus came from the ureteral orifice of the right side.

The inference was that he had a normal kidney on the left, and a pyonephrosis on the right. He was in very poor condition from sepsis, and I decided to do a primary nephrotomy. Two weeks later his condition had sufficiently improved to warrant attempting nephrectomy. In this operation there was the usual dif-

[1] See Journal, p. 7.
[2] See Journal, p. 9.
[3] See Journal, p. 12.

ficulty in getting through the adhesions to expose the kidney, the cavity of which had contracted to the size of an egg. This was the extent of the cavity, but it was not the extent of the mass. Going down below that cavity, and to the patient's left, was a continuation of the mass, with a rounded outline, which felt like kidney tissue. I thought the left ureter was probably draining the left side of this mass, which was probably a double kidney. As the patient was not in very good condition, I replaced the tube in the pyonephrotic portion, and closed the wound. It remains for the cystoscope and x-ray catheters to demonstrate the position of the left ureter and pelvis of the kidney.

DR. H. CABOT, Boston: The paper which I want to discuss particularly is that of Dr. Pitts on infections of the bladder, though did time permit I should be glad to discuss the other papers. There has been and still is much misconception and confusion in regard to infections of the bladder. The diagnosis of cystitis is still commonly made, and one would inevitably conclude from the way in which the word is used that it is regarded as a common disease. As a matter of fact, I believe it to be a very uncommon disease, and to be, in the vast majority of cases, not a disease at all, but a symptom. There is probably no part of the urinary tract so able to resist infection as the bladder. It seems to me now pretty clear that in the male cystitis is always secondary to some other condition, that the infection starts in the kidney, prostate or neighboring organs, or affects the bladder on account of some other condition arising in the bladder, such as tumor or stone. The cystitis which results from the overdistention of the bladder due to the reflex retention of urine following certain surgical operations may be regarded as an apparent exception, but under these conditions it is the disturbance of the muscular mechanism of the neck of the bladder which gives rise to the conditions essential to the subsequent infection.

In the female there is a considerable group of cases of what have been regarded as idiopathic cystitis. This subject has interested me particularly, and we have been studying it during the last two years. As a result of this work, we have seen evidence that in many cases the process is not primary in the bladder, but is in fact a chronic pyelitis with acute exacerbations, giving rise to bladder symptoms. It seems to me at least possible that these cases are the late manifestations of a pyelitis beginning in infancy, for, as we know, the bacilluria is frequently very intractable and may persist indefinitely. This view is largely theoretical, but is now supported by four cases having a clear history of pyelitis in infancy with recurrent attacks of fever throughout childhood and which now show the changes in the renal pelvis associated with chronic pyelitis.

I have come to believe, as the result of this work, that recurrent attacks of so-called cystitis will generally be found to have their origin in a pyelitis, and that though the urine between attacks may be apparently normal, a persistent colon bacillus infection can always be found. As a corollary to this, I think that we should investigate all these cases as to the condition of their renal pelves, and I think that in not a few, some changes will be found which should be remedied by operation or otherwise.

DR. HERBERT TERRY, Providence, R. I.: In regard to cystitis, I am sorry that a specimen was lost somewhere between the operating room and the laboratory. A suprapubic opening was made in an old prostatic who had had retention for days before coming into the hospital, and what appeared to be the whole lining membrane of the bladder came through the wound like an afterbirth. I should have been glad to have examined it more carefully.

In regard to prostatic abscess, it is a confession of ignorance I know, but I have never seen but one to recognize it, and this was in the service of one of the surgeons in this hospital years ago. I have seen abscesses that I thought were in the tissue about the seminal vesicles. One of the two opened left a sinus which, later, was traced up to the region of the vesicle and laid open.

DR. R. F. O'NEIL, Boston: These three interesting papers bring up so many points for discussion that it is obviously impossible to lay stress on but a few. Dr. Terry spoke of the almost constant involvement of the prostate to a greater or less extent in chronic posterior urethritis. This fact is almost equalled by the frequency with which this involvement is very generally overlooked. This is strongly borne in on one having a large genito-urinary clinic.

That the bladder is a long-suffering organ and receives much and varied treatment for extra-vesical lesions is well known to those working along genito-urinary lines, but is not by any means generally recognized, and "cystitis" still covers many renal and other lesions readily differentiated by the cystoscopist. The specimens shown by Dr. O. C. Smith to-night are marked examples of this. A recent case in my practice of a young man who had received long treatment directed to the prostate, the real lesion being a congenital diverticulum of the bladder, is another instance.

In Dr. Pitts' enumeration of the extra-vesical causes of cystitis he did not mention the unusual one of intestinal vesical fistula. I have known of three such; one occurred in the practice of my colleague, Dr. Chute, in which I took part in the operation. The patient gave the history of passing "air" per urethram. Intestinal contents were passed in the urine, and the fistula was demonstrated cystoscopically. He had marked urinary symptoms and was in poor condition. He died from a peritonitis following an attempt to separate and suture the intestine and bladder. The cause of the fistula was an old diverticulitis of the sigmoid.

I was much interested to hear of Dr. Terry's case of sloughing of the mucous membrane of the bladder. I had occasion to look up the subject and collected some ninety cases of gangrene of the bladder. They mostly followed enormous over-distention of the viscus with secondary bacterial infection. If not immediately fatal, the end functional result depends upon the amount of destruction of the muscular coat and at the vesical neck.

DR. H. PITTS, Providence: There are two conditions in women which are, I think, the sources of a great many recurring attacks of cystitis. One is a slight prolapse of the base of the bladder with a certain amount of urinary stasis; the other, chronic infection in the glands of Bartholin and in the urethral glands. I remember one case particularly, a woman married six years, no children, who came to me for recurring attacks of cystitis and sterility. Examination showed an enlarged Bartholin's gland on the left, and some evidence about the urethra of chronic infection there. She became pregnant after removal of the chronically inflamed gland and a curetting, and has had no further attacks of cystitis. Cystitis accompanying prolapse of the base of the bladder may be improved or even cured for the time being by proper treatment, but will recur unless something is done to prevent the urinary stasis.

DR. CUMSTON: There is one other cause of local cystitis which has not been mentioned, and that is dermoid, ovarian cyst perforating into the bladder. This is occasionally encountered.

Dr. Terry has mentioned primary tuberculosis of the

prostate. I have had one case that is so unique I think it is well worth mentioning in brief. A patient, seventy-eight years of age, had for about a year before operation the ordinary symptoms of enlarged prostate. Upon examination the prostate gland was found very much enlarged, but in other respects he was perfectly well, functions were being conducted properly. I cut down on the process by the perineal route, and when it was exposed and the capsule incised, the gland was found in a softened condition. It was removed in bits and we assumed it was a malignant growth, but on microscopic examination it appeared that it was tuberculous. The patient recovered from the operation with a fairly good sized fistula, but he was relieved of his symptoms. He died about one year later from pulmonary tuberculosis.

Now, one word as to Dr. Fuller's operation. I was glad to hear from Dr. Terry an explanation why Dr. Fuller is so successful. A short time ago I had occasion to see in a town outside of Boston as beautiful a brace of enlarged seminal vesicles as one could wish, and I immediately suggested to the family physician that as the case had been of several years' duration this undoubtedly was the opportunity for incision and drainage. As I used to do gynecology to some extent, and had drained pus tubes by the vaginal route, I inferred that the seminal vesicles could be reached and incised without any more difficulty than a suppurating salpingitis. I asked an eminent member of this society to go along with me, and we both read up the operation very carefully, and if I remember rightly, I took in my kit the volume of the Transactions containing the description of the operation and we rehearsed it together in the Pullman car. We proceeded to make the incision advised, which was an easy matter, but after many vain attempts, both on the part of my eminent colleague and myself to reach the vesicles, we retired from the amphitheater, also leaving the two vesicles untouched. The technic appears easy on paper, but when you come to do it, it is a very different thing.

One more word relative to Dr. Pitts' paper. I have dabbled somewhat in gynecology myself and may say that I have seen a goodly number of cases of prolapse of the uterus in varying degrees with symptoms of cystitis, with the urine far from normal. I have also made, as Dr. Pitts suggests, a nice little vesico-vaginal fistula with the result that conditions were generally worse. Since urology has enlightened us, these cases are no longer treated that way at my hands. Cystitis is merely a symptom, and points, as Dr. Cabot has said, to a lesion of some part of the urogenital tract. The bladder symptoms in females who present prolapse or retroversion are rarely, if ever, benefited by plastic operation on the vagina and fixing up the uterus. I think when the symptoms have become so marked there is already an infection and that after plastic operation has been done it is then time to treat the case locally and discover the cause of the continuance of the symptoms, but I feel quite positive that gynecology is not going to relieve the later symptoms in these cases.

Dr. J. D. Barney, Boston: I have nothing further to say except to emphasize a point in the treatment of tubercular prostatitis. The gentlemen who have spoken did not state specifically anything about the use of tuberculin, and I would like to say that we consider it of the utmost value in connection with hygiene, especially in cases that have been operated on for renal tuberculosis. All patients are instructed and forced, as far as possible, to return to the hospital not only once, but regularly for six months or a year or more once a week to get a dose of tuberculin. A comparison of the cases which we have kept showed plainly the improvement of those who returned regularly for treatment. It is hard in the case of out-patients to get them to come as often and as regularly as they should, but we consider it is the thing to do if possible.

Book Reviews.

Nervous and Mental Diseases. By Archibald Church, M.D., and Frederick Peterson, M.D. Seventh edition, thoroughly revised. Octavo. Pp. 932. With 343 illustrations. Philadelphia and London: W. B. Saunders Company. 1911.

The previous editions of this work have been so often noted in these columns, and the work itself is so well known, that it is almost superfluous to call attention to it once more. This edition has been thoroughly revised and over one hundred and fifty interpolations have been made. The chapters on meningitis, aphasia, poliomyelitis, pellagra and pituitary diseases have been largely rewritten, and a section added on congenital amyotonia. The section on mental diseases has been wholly rearranged in accordance with the present need of classification in America. Dr. Meyer's presentation of the doctrines of Kraepelin, Wernicke and Ziehen has been omitted. The value of the work has been considerably enhanced by the effort to bring it up to date.

The Conquest of Nerves. By J. W. Courtney, M.D. 12 mo. Pp. vi, 209. New York: The Macmillan Company. 1911.

In this little volume the author has tried to teach those suffering from "nerves" the "things that are vital to their recovery"; that "psychotherapeutics and auto-suggestion, reduced to terms of common understanding, mean *self-discipline.*" With this object in view, he gives an amusing description and scathing criticism of some of the modern forms of charlatanry, Christian Science, the Emmanuel Movement, New Thought and the rest. Just why he modifies his tone and speaks in terms of quasi respect of the Emmanuel Movement in comparison with the others we fail, however, to understand. He next gives a highly colored picture of the mental and emotional aspects of functional nervous disorder, in the attempt to present them at their worst in order to show the victim that his case is thoroughly understood and is by no means unique, and to teach him how a cure may be effected. The description, in spite of its intentional exaggeration, is based upon fact and is an amusing presentation of the condition. The volume ends with chapters upon the physical and psychical treatment of these conditions, which are clear and reasonable and free from fads. In the flood of unutterable rot which has been published upon the treatment of the neuroses, especially upon the psychical treatment, there are a very few books which, like this, show some intelligence and common sense. How many of the victims will select a book like this, and profit by its teachings is, however, a conundrum.

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101 TREMONT STREET, BOSTON, MASS.

THE DEATH OF EDWARD LONGSHANKS.

EDWARD the First, surnamed Longshanks, on account of his great stature, was one of the most picturesque of the English kings. He was born at Westminster on June 16, 1239, and succeeded Henry III upon the throne in 1272. He was an able and energetic monarch, a great warrior, a wise legislator, a determined champion of constitutional authority. It was he who first completely subdued the Welsh to the English crown, and in the person of his son Edward II gave them the first Prince of Wales. This prince was born in the Castle of Carnarvon, built by his father, whose extensive architectural enterprises earned him also the title of "the castle builder." Among many others of his construction, the castles of Conway in Wales and of Beaumarais in Anglesey remain in ruins still as exquisite memorials of the romance and aspirations of his life.

That Edward Longshanks was a man of sagacity beyond his time is evidenced by his being the first to bring before Parliament, then held in Carlisle, a measure relating to the safeguarding of public health by the prevention of the pollution of rivers used for drinking water. This and other facts of medical interest pertaining to his career were collected in 1896 by Dr. Henry Barnes, of Carlisle, and presented in an interesting paper before the meeting of the British Medical Association at that city in that year. Dr. Barnes speaks particularly of the king's personal qualities and of the circumstances attending his last illness.

"He was a man of great physical strength, but his health began to fail in 1306, when he was at Winchester during the season of Lent. Later he began to suffer from dysentery, and he spent the winter at Lanercost, a monastery of the Order of St. Augustine, about nine miles east of Carlisle. It is reported that on his journey from York to Carlisle his sufferings increased so much that on Sept. 8 Richard de Montpelier was ordered to proceed to London to procure remedies. The king arrived at Lanercost on Oct. 1, 1306, with his queen, Margaret, and remained there until Feb. 28, 1307.

"The royal physician at this time was Nicholas de Tyngewyke, who was evidently held in high esteem by the king, since the latter, writing to the Pope on Oct. 7, 1306, refers to Tyngewyke as *medicus noster, persona honestae vitae, bonae conversationis, eminentis scientiae.* With the help of this skillful physician the king's health was so far restored that he contemplated resuming the command of his forces in a fresh campaign against the Bruce. Although still in great bodily weakness, he determined to lead his army in person, and about Midsummer Day, 1307, he made a solemn offering, in the cathedral church of Carlisle, of the horses and litter he had been accustomed to use, and on July 3 he mounted his charger to begin his seventh campaign against Scotland. His almost unexampled labors, however, had already undermined his vigorous health, and the first day he could march only two miles, his dysentery again attacking him. The next day he managed to ride two miles further. After a day's rest, he reached Burgh-by-Sands on July 6, and here on July 7, 1307, he died.

"In the proceedings of the commissioners, on the public records of the realm, is a list of the drugs ordered by the king's physician during this period. The list included distilled oil of turpentine, aromatic flowers for baths, carminative electuaries, plasters and ointments of various kinds, the oils of wheat, ash and bay, water of the roses of Damascus, wine of pomegranates and remedies prepared from pearls, jacinths and coral. The amount of the apothecary's bill was £134 16*s.* 4*d.*, and the cost of conveying the drugs from London to Carlisle was £159 11*s.* 10*d.*"

Unfortunately we have no record of the physician's charges. The exact nature of Edward's illness will probably never be known. He was not of the age for tuberculous enteritis. His dysentery may have represented a genuine infectious colitis, but most likely was symptomatic of a carcinoma of the sigmoid or rectum.

Edward Longshanks was buried in Westminster Abbey, where his gigantic stone tomb may still be seen in the Chapel of Edward the Confessor as evidence of the appropriateness of his surname. Upon the top is the emphatic inscription, *Eduardus primus, Scotorum malleus, hic est.* Some years ago the tomb was opened and the body found in excellent preservation, wearing a crown of gilded tin and with a copper gilt scepter in the hand. Had it been permissible, an autopsy at that time might still have determined the cause of death of the royal castle-builder.

THE SUPPRESSION OF TUBERCULOSIS.

From time to time there has been some question as to the success of the anti-tuberculosis propaganda. The latest census reports demonstrate, however, a measurable success. In the registration area of the United States during the last decennial period there was a decrease of 18.7% in the death-rate from tuberculous affections. During the same period the yearly average of deaths from tuberculosis decreased from 1.969% to 1.603% in each million of the population.

It has been demurred that though the anti-tuberculosis propaganda have effected a reduction in the mortality from consumption, this reduction is only the same as that which medical science has effected in all diseases. But in the last decennial period the general death-rate declined only 9.7%, or from 16,550 to 14,950 in each million. It would seem, then, that the tuberculosis mortality has been reduced at almost twice as great a ratio as that from all diseases and causes, and that some twenty thousand lives are now being saved annually which ten years ago would have succumbed to the tubercle bacillus.

The progress thus far made gives hope of still further advances. Only a small part of our population has as yet been reached; only a minority of the tuberculous have thus far had the advantage of the modern treatment. The extension of the present wise and beneficent methods of prophylaxis and of cure to the whole vast field in which the tubercle bacillus is implanted should increase the good results.

Tuberculosis is one of the most devastating economic and social factors in the history of the human race. There are two weapons against it which deserve special emphasis: education and the local hospital for the tuberculous. Education of the laity by medical lectures, the dispensary, the leaflet, magazine articles and the lay press has now been active for some years; it should be consistently maintained and the paths of its dissemination reduplicated and broadened. As to the local hospital, an example has been set in several states where laws have been enacted encouraging the establishment and maintenance of local hospitals or sanatoria for tuberculous patients in addition to the large state sanatoria. This movement should become general for it tends to secure segregation of the advanced cases which constitute the greatest menace to the community.

FOUR OLD OBSTETRIC TEXTBOOKS.

In the issue of the *British Medical Journal* for June 15 is an article by Sir John Byers, M.D., professor of midwifery in the Queen's University of Belfast, on "The Evolution of Obstetric Medicine," especially illustrated by references to four old works on midwifery. These four books have certain points of interest which make some description of them seem justifiable.

The first is entitled, "The Byrth of Mankynde, other wyse named the Woomans booke, by Thomas Raynold, phisition, 1545." It is an English translation of a Latin version of "Der Swangern frawen und Hebammen Rosegarten," a German book, the first work on midwifery ever printed, published at Worms in 1513. Raynold, the English translator, was a "phisition" of some distinction in his time. His book, which went through fourteen editions before 1676, was for years the only English textbook of midwifery, and excited an immense influence on the development of obstetrics.

The second book is entitled, "The Compleat Midwife, Her Practice enlarged." It is the work of Madam Louyse Bourgioes, midwife to the Queen of France. Madam Louyse was a celebrated Parisian midwife, born in 1563. She was educated under Ambroise Paré and was one of the first graduates of the famous school for midwives at the Hôtel Dieu in Paris. Her book represents a deal of practical knowledge, coupled with much prejudice, ignorance and fallacy belonging to her time. At the conclusion of ten chapters are a few pages by Dr. Nicholas Culpepper, who practiced at Spitalfields, and was a distinguished man of his time.

The third book is entitled, "The Art of Midwifery Improved." This was written by one Henry Daventer, a Dutch goldsmith, who later took up medicine. He practiced in both Holland and England, and seems to have shown a genuine desire to lift obstetrics to a plane of deserved independence. He was one of the first to study deformities of the pelvis, and has been styled "the father of modern midwifery."

The fourth book is Dr. John Burton's letter to Dr. William Smellie, "containing critical and practical remarks upon his treatise on the theory and practice of midwifery." John Burton, of Ripon, Yorkshire, is chiefly distinguished, however, not as the critic of the great Smellie, but as the prototype of Dr. Slop in "Tristram Shandy." He was particularly an advocate and exponent of the various procedures with forceps.

Upon these four works was founded the later development of obstetrics, a progress which Dr. Byers sketches briefly. It is not desirable here to rehearse that story, but its course illustrates very forcibly one fact of particular modern pertinence, — the gradual elimination of the midwife as a responsible factor in obstetrics, and her replacement by the physician, or, better, the surgeon, whose responsibility is absolute.

THE PHENOMENA OF DECLINING BIRTH-RATES.

FOR a number of years France has been the medically familiar example of a country with an alarmingly diminishing birth-rate. This diminution has now gone so far that the births are now fewer than the deaths, and the population of France is steadily declining. In a recent issue of the *Journal of the American Medical Association*, attention was called to the latest developments of this striking biologic phenomenon.

Just as France has been the example of a declining nation, so Germany has been cited as typical of a virile and progressive people, increasing and multiplying to possess the land. For a number of years this was true, but gradually the fertility of the Germans seems to have begun to slacken, and German publicists are beginning to view the prospect with alarm.

In Prussia in 1911 there were 34,000 fewer births than there were in 1910. In 1910 there were 31,000 less than in 1909; and in 1909, 21,000 less than in 1908. Already various projects have been suggested to counteract this process, but none has been adopted with success. In Melbourne, Australia, a law is under consideration to grant a maternity allowance equivalent to $25 on every birth registered. The funds to defray such a provision would be raised by general taxation or by a special tax on bachelors. But such projects are probably futile. The same process, whatever its biologic or sociologic foundation, is at work everywhere in civilization. Perhaps it may be regarded as one of the beneficently adopted checks and balances of nature. Whatever its cause, the mischief is afoot, and whether in Germany or in France or in the United States will probably run its course independent of whatever may be done to control or alter it.

MEDICAL NOTES.

INFANT FATALITIES FROM BURNS. — Statistics indicate that 1,600 children under one year die annually in England and Wales from burns.

A LIVING BRITISH CENTENARIAN. — Mrs. Sage, of Bristol, England, who is said to have been born in 1812, celebrated recently the supposed centennial anniversary of her birth. Her health is excellent.

A CENTENARIAN. — Erasmus Page, who died at Joliet, Ill., on June 30, was locally reputed to have been born in 1809. Until within a few days of his death, he continued at his life-long occupation of selling newspapers.

AIR-ANALYSIS IN HAMBURG SCHOOLS. — In the public schools of Hamburg, Germany, the air is analyzed at regular intervals and its bacterial and dust content determined at various levels.

INFECTION WITH TRYPANOSOMIASIS. — Report from Parma on June 24 states that Dr. Alexandre Lanfranchi, director of the Parma Veterinary Institute, has recently become infected with trypanosomiasis during some experiments which he was making with this disease in dogs, and is now being treated at the Pasteur Institute.

PREVENTION OF ENDEMIC LEAD-POISONING IN AUSTRIA. — As a means of checking endemic, occupational lead-poisoning in southern Europe, the Industrial Association of Lower Austria has offered a gold medal for the best method of preparing leadless printing and lithographic colors.

LONDON DEATH-RATES IN MAY. — Statistics recently published show that the total death-rate of London in May was 13.3 per 1,000 living. Among the several districts and boroughs the highest rate was 19.1 in Finsbury, one of the crowded central regions, and the lowest was 9.5 in Hampstead, an open suburb on the north.

MODIFICATION OF SACCHARIN RULING. — Report from Washington, D. C., states that on June 25 "the saccharin rulings of the Pure Food board were modified to permit the use of saccharin in medicinal foods, when its presence is stated on the label. The order contains a specific provision against the interpretation of the modification to permit use of saccharin in foods not strictly medicinal."

BUBONIC PLAGUE IN PORTO RICO. — In last week's issue of the JOURNAL we noted the appearance of a moderate outbreak of bubonic plague in San Juan, Porto Rico. Report from Washington, D. C., states that up to July 2 there had been in San Juan 31 cases and 17 deaths of the

disease. Systematic disinfection of houses and extermination of rats has been undertaken in the infected region.

Colgate University. — At the suggestion of the dean, Colgate University has signified its intention of permitting students to take the senior year in a registered medical college *in absentia*, such students to receive the bachelor's degree upon the presentation of a certificate from the college of medicine attended to the effect that his work has been done satisfactorily.

Award of Medal to Dr. Gorgas. — The Trustees of the American Medicine Gold Medal Award respectfully announce that the medal for 1912 has been conferred upon Dr. William C. Gorgas, Ancon, Panama, as the American physician who in their judgment has performed the most conspicuous and noteworthy service in the domain of medicine during the past year.

Treatment of Cholera and Cancer. — Report from Paris on June 29 states that Dr. Pierre Roux, of the Pasteur Institute in Tunis, has recently communicated to the French Academy of Medicine the result of experiments in the treatment of Asiatic cholera by intravenous infusions of living cultures of cholera vibrios. Report from Berlin on the same date states that Dr. Czerny, of the University of Heidelberg, and his colleague, Dr. Otto Hahn, have recently reported in the current issue of the *Umschau* the results of their work in the treatment of epithelioma with applications of mesothorium as a substitute for radium.

Honorary Degrees for Physicians. — At the recent commencement of the University of Pennsylvania, the honorary degree of doctor of laws was conferred on Louis A. Dühring, emeritus professor of dermatology, and on James Tyson, emeritus professor of medicine in the university. At the eighty-first annual commencement of Wesleyan University at Middletown, Conn., held on June 19, the honorary degree of doctor of laws was conferred upon Dr. Amos J. Givens.

Relation of Sewage Pollution to Typhoid Fever. — In a recently published bulletin (No. 83) of the hygienic laboratory of the United States Public Health and Marine-Hospital Service, Dr. Allan J. McLaughlin continues his study (begun in bulletin No. 77) of the "Sewage Pollution of Interstate and International Waters with Special Reference to the Spread of Typhoid Fever." It is interesting to note that the three cities in the United States having the lowest annual typhoid death-rate are Bridgeport, Conn.; Fall River, Mass., and Boston.

Eradication of Hookworm Disease. — The following passage from the latest report of the Rockefeller Sanitary Commission describes vividly the progress of its work for the eradication of hookworm disease in the southern states:

"In communities where the infection is heavy and after the dispensary has had a few days within which to demonstrate its effectiveness, the people come in throngs; they come by boat, by train, by private conveyance for twenty and thirty miles. Our records contain stories of men, women and children walking in over country roads ten and twelve miles, the more anemic at times falling by the way, to be picked up and brought in by neighbors passing with wagons. As many as 455 people have been treated at one place in one day. A friend who had just visited some of the dispensaries said to me recently: 'It looks like the days of Galilee.'

"'The people usually begin to arrive early. I visited one dispensary at eight o'clock in the morning and found forty-three persons there waiting for attention. They linger; they gather in groups around the tables of exhibits; they listen to the stories of improvement as told by those who have been treated, and return to their homes to report to their neighbors what they have seen and heard. The rapidity with which this teaching by demonstration gets its hold upon the people in communities where the infection is heavy is seen in the early records of the work in new territory. When the work opened in North Carolina in July, Dr. Covington treated in Halifax County the first week 194 people, the second week 438 and the third week 537.'"

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, June 25, 1912, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 18, scarlatina 19, typhoid fever 13, measles 110, smallpox 0, tuberculosis 63.

The death-rate of the reported deaths for the week ending June 25, 1912, was 13.76.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday noon, June 29, 1912, was 138, against 155 the corresponding week of last year, showing a decrease of 17 deaths, and making the death-rate for the week, 9.99. Of this number 69 were males and 69 were females; 138 were white and 0 colored; 80 were born in the United States, 56 in foreign

countries and 2 unknown; 28 were of American parentage, 95 of foreign parentage and 15 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 16 cases and 1 death; scarlatina, 17 cases and 0 deaths; typhoid fever, 10 cases and 1 death; measles, 127 cases and 3 deaths; tuberculosis, 58 cases and 25 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 8, whooping cough 0, heart disease 15, bronchitis 1. There were 12 deaths from violent causes. The number of children who died under one year was 10; the number under five years, 22. The number of persons who died over sixty years of age was 34. The deaths in hospitals and public institutions were 62.

MILK FINES IN BOSTON. — Before the Roxbury district court last week eighteen dealers of this city were convicted of selling milk without a license to do so, and two of selling milk not up to the standard required by law. The twenty were fined an aggregate of $210.

CASE OF FILARIASIS IN BOSTON. — Last week a case of filariasis was discovered in Boston in the person of a newly arrived immigrant who was detained and will probably be deported. This is said to be the first case of filariasis that has been observed by the quarantine officials in Boston.

PROVIDENCE CITY HOSPITAL. — The recently published second annual report of the Providence (R. I.) City Hospital records the work of that institution for the calendar year 1911. During this period 746 patients were discharged from the hospital, of whom 102 had tuberculosis. A day camp for tuberculous patients was also maintained. Seven nurses were graduated from the training school.

MASSACHUSETTS COLLEGE OF PHARMACY. — The Massachusetts College of Pharmacy has recently acquired a tract of land on Longwood Avenue, Boston, upon which it is expected that a new building for the college will be constructed in the near future.

FREE HOSPITAL FOR WOMEN. — The annual graduation exercises of the training school were held last week at the Free Hospital for Women, Brookline. The principal address was made by Dr. William H. Baker, and diplomas were awarded to ten pupil candidates.

INFIRMARY FOR ST. PAUL'S SCHOOL. — Report from Concord, N. H., on June 26, states that Mrs. George Armour, of Princeton, N. J., has recently given to St. Paul's School, of Concord, the sum of $50,000 for the erection and equipment there of an infirmary to be known as the "Edmund Armour Memorial Infirmary."

INTERNATIONAL HAHNEMANNIAN ASSOCIATION. — A convention of the International Hahnemannian Association was held last week at Swampscott, Mass., under the presidency of Dr. John Hutchinson, of New York. At the meetings of the respective sections on the three days of the convention many papers were presented by representatives from various parts of the country. At the closing session the following officers were elected for the ensuing year: President, Dr. J. B. S. King, of Chicago; vice-president, Dr. Julia M. Greene, of Washington, D. C.; secretary, Dr. Frank W. Patch, of Framingham; treasurer, Dr. William R. Powell, of Philadelphia.

CAMBRIDGE VISITING NURSING ASSOCIATION. — The following appeal has been issued by the directors of the Cambridge Visiting Nursing Association:

"Although the Cambridge Visiting Nursing Association has been in existence eight years and has rendered eminently efficient service, its object and the scope of its work are still not fully comprehended by many in the community who might employ the nurses or contribute toward their support.

"The object of the Association is to provide for the sick of Cambridge — whether rich or poor — trained care whenever temporary nursing service is required. Although needy patients would receive first consideration, were it impossible to meet all demands, up to the present time no legitimate call has ever been refused.

"The maximum charge of forty cents a visit (and car fares) represents the actual cost to the association. As, however, this is paid by comparatively few patients — while many pay nothing, or a merely nominal sum — the association is largely dependent on annual subscriptions and donations. The number of subscribers last year was but 380 out of a population of 100,000. During the same year 19,064 visits were made to 1,867 patients living in all parts of the city. In order adequately to meet the steadily growing demands, the directors of the association appeal to the public for increased financial assistance.

"Contributions may be sent to Miss Sarah Yerxa, assistant treasurer, 37 Lancaster Street, Cambridge. Mary L. Wesselhoeft, secretary; Mrs. Woodward Emery, president."

NEW YORK.

AWARD OF EDWARD LONGSTRETH MEDAL. — The Franklin Institute of Philadelphia has this year awarded the Edward Longstreth Medal of Merit to Dr. Charles Baskerville, professor of chemistry and director of the chemical laboratory at the College of the City of New York, for useful researches in the chemistry of anesthetics.

HOSPITAL FOR FEDERATION OF RUSSIAN AND POLISH JEWS. — It is announced that the Federation of Russian and Polish Jews, which has 175 lodges in New York and its vicinity, with a membership of 30,000, is to erect a hospital, eight stories in height and costing $150,000, at Lexington Avenue and 113th Street. This is to take the place of the Beth David Hospital (though the name of this is to be retained) which the federation has for some time conducted in the small buildings on East 82d Street formerly used for the Yorkville Hospital, an institution no longer existing.

TUBERCULOSIS IN MOVING PICTURES. — A moving picture show illustrating conditions favorable to the development and spread of tuberculosis and the methods employed in fighting the disease was given on the evening of June 21 in Mount Morris Park, Harlem, under the auspices of the Health Department and the committee on the prevention of tuberculosis of the State Charities Aid Association. The same outdoor exhibition is to be repeated twice a week, each time in a different public park, all through the summer.

MORTALITY STATISTICS. — The quarterly condensed report of the Bureau of Records of the City Health Department, just issued, shows that in the three months ending March 31, in an estimated population of 5,173,064, there were 20,257 deaths, giving an annual death-rate of 15.71, as against the corresponding quarter of 1911, when, in an estimated population of 4,983,385, there were 20,876 deaths, giving a death-rate of 17.00; 34,931 births were reported, as against 34,506 in the corresponding quarter of 1911. Among the few affections in which there was an increased mortality as compared with the average of the past five years, corrected to correspond to increase of population, were organic heart diseases, in which the increase was 473, and cancer, in which the increase was 38. The principal decreases from the quinquennial averages were, bronchopneumonia, 407; Bright's disease and acute nephritis, 315; diphtheria and croup, 250; pulmonary tuberculosis, 193; congenital debility and malformations, 190; scarlet fever, 185; influenza, 174.

HABEAS CORPUS PROCEEDINGS. — In the last annual report of the State Hospital for Insane Criminals at Matteawan, Dutchess County, Dr. James V. May, the medical superintendent, states that of the 26 inmates who during the year obtained writs of habeas corpus and were examined as to their sanity, 4 were indicted for murder, 7 for assault and 1 for manslaughter. Of 15 discharged as sane, several had shown unmistakable evidences of insanity, while others had committed criminal acts since their release. Yet 24 of these examined cases were diagnosed by the hospital authorities as unrecovered, and considered unsuitable for discharge. In accordance with that of previous superintendents of the institution, Dr. May reaches the conclusion that a determination of the mental condition of a patient by a habeas corpus proceeding is highly unsatisfactory.

NEW SEMI-PRIVATE HOSPITAL. — A private hospital is about to be started which will be exclusively for the use of chronic patients who can afford to pay a fair amount for special attention. It is to be built by the authorities of the Montefiore Home and Hospital for Chronic Invalids (almost all the patients of which are treated gratuitously), at a cost of $200,000, and four of the directors of that institution, headed by Jacob H. Schiff, its president, have each subscribed $50,000 to erect it. The building will be situated just opposite the new Montefiore Home at 210th Street and Gun Hill Road, in the Bronx, and the idea of having such an annex was suggested by Dr. Siegfried Wachsmann, the medical director of the home. This new departure is not intended for the wealthy classes, who are able to secure proper attention for chronic cases, but for those of moderate means to whom this means a tax beyond their resources. Dr. Wachsmann believes also that it will benefit the institution. "It will be visited," he said in speaking of it, "by the relatives and friends of the patients who belong to the class who are the real supporters of all charitable institutions. They will see the good work being done by the Montefiore Home, they will see the patients comfortable and properly treated, and such personal observation by our supporters reaches the heart more effectively than words and statistics."

SUCCESSFUL USE OF ANTIVENOM SERUM. — A successful use of antivenom serum is reported, in the hands of Dr. H. D. Johnson, house physician of the Breton Hall Hotel. While picking mountain laurel by the roadside when motoring near Tuxedo Park on June 16, G. Butler Smith, vice-president of the Breton Hall and Hotel Seymour companies, was bitten on the hand by a snake some three feet long, believed by him to have been a copperhead. The injured member was bound up with an antiseptic procured at the Tuxedo drug store, and Mr. Smith returned to New York. The hand continued to swell, however, and on the following day the patient's condition was so serious that it was feared that he would lose his arm, if not his life. Dr. Johnson, in the meanwhile, was vainly endeavoring to secure some antivenom serum, neither the Health Department or any of the large drug houses being able to supply this. At last it occurred to him to apply to Director Hornady, of the New York Zoölogical Park, in the Bronx, and, fortunately the latter, who it appears is always prepared for just such emergencies among the employees of the park, where many venomous snakes are among its specimens, was in a postion to furnish a supply of the serum, and promptly did so. It was feared that it might already be too late for the remedy to have the desired effect, but such was not the case. Its antidotal action was almost immediate. The same night the swelling of the hand and arm began to subside, and on the 18th all danger from the bite was apparently over.

THE RESPONSIBILITY OF PHYSICIANS AND MIDWIVES IN THE REPORTING OF BIRTHS. — The Commissioner of Health, Ernst J. Lederle, Ph.D., calls attention to the fact that the number of births recorded in New York City during the past five months of 1912 was 56,258, as against 56,082 for the corresponding period of 1911. This would indicate a decrease of 1.10 per 1,000 of the population, which means, if this low birth-rate is to continue, that there will be 5,690 fewer births recorded during the year 1912 than during 1911.

It is not believed that this decline in the statistics is due to natural causes. A comparison of the birth and death indices for the month of May in the borough of Manhattan shows that there were 17 children under three months of age who died during the month of May and whose births had not been recorded. If we remember that 1 out of every 5 children dies during the first three months of life, and as this method of ascertaining the number of births not reported applies necessarily only to those that have died, it is evident that the number of births not reported during the month of May must be considerably larger than the 17 referred to. Again, the decline is most marked in the borough of Brooklyn, where the birth-rate has fallen over two points during the first five months of the year, while, on the other hand, the infant death-rate of those under one year of age has remained stationary. If the decline in the rate were dependent upon natural causes, it would be accompanied by a decrease in the number of children dying under one year of age, but we find in the borough of Brooklyn that the number of deaths of such infants in 1912 exceeded those in 1911 by 43. Moreover, the number of marriages reported in 1911 was 48,765, an increase of 2,348 over those of 1910.

From these figures it would seem evident that the decline in the birth-rate is due to the fact that physicians and midwives have, in many instances, failed to report births. This is a matter of great importance both to the city and to its future citizens. In addition to the fact that vital statistics are thereby greatly impaired in accuracy, the amount of trouble and expense to which persons are liable in later life on account of this neglect may be considerable. The Department of Health wishes to make it clear to physicians and midwives that this state of affairs must not continue.

Current Literature.

MEDICAL RECORD.
JUNE 22, 1912.

1. HARTZELL, M. B. *An Epidemic of Epithelioma (Molluscum) Contagiosum, with Some New Observations Concerning the "Molluscum Bodies."*
2. TOREK, F. *A Contribution to the Study and Surgical Treatment of Oblique Inguinal Hernia.*
3. HAYS, H. *Transplantation of Rib for Depressed Deformity of the Nose.*
4. *ELY, L. W. *A Case of Bone Syphilis Masquerading as Tuberculosis.*
5. MCNUTT, S. J. *Non-Operative Treatment of Sterility.*
6. NARIUS, W. *The Chest Index in Pulmonary Tuberculosis.*
7. KERR, L. *Surgery from the Pediatric Standpoint.*
8. WILKINSON, O. *A Case of Dry Necrosis of the Mastoid Cells.*

4. Ely reports a case of bone syphilis in a young physician, interesting chiefly because it very closely resembled tuberculosis. A painful swelling appeared in the left index finger. After five months it was incised and some of the tissue was examined and reported tuberculous. The Wassermann test was negative, Von Pirquet positive. The finger was amputated six months after onset. A few weeks later there was soreness over the sternum and a fluctuating swelling gradually appeared. Three months later the left wrist and left knee became painful, swollen and tender and persisted thus more than a year. The correct diagnosis was finally made with the x-ray and the patient promptly responded to antiluetic medication.

[L. D. C.]

NEW YORK MEDICAL JOURNAL.

JUNE 22, 1912.

1. LORENZ, A. *Indications for Arthrodesis and Arthrolysis.*
2. PUTNAM, J. J. *Comments on Sex Issues from the Freudian Standpoint.*
3. WARD, G. G., JR. *The Causes and Results of Constipation in Relation to Pelvic Disorders of Women.*
4. RICHARDSON, W. W. *Dementia Paralytica.*
5. *CORNWALL, E. E. *The Dietetic Treatment of Cardiovascular Disease.*
6. GIRSDANSKY, M. *Pneumonia as a Complication.*
7. MANNING, J. V. *The Rapidly Fatal Institutional Form of Acute Poliomyelitis.*
8. BLUM, C. *Some Facts Suggested by the Examination of the Children of Tuberculous Patients.*

5. Cornwall asserts that the most important thing in the treatment of cardiovascular disease is the regulation of the diet. The aim should be to supply the maximum of nutrition with the minimum of work for the crippled circulatory system. The quantity of food should be restricted to the minimum health ration, and articles should be selected which meet the indications presented by the kidneys, liver, stomach and intestine as well as the heart. The diet should be anti-putrefactive, free from purins and the more fermentable carbohydrates, especially cane sugar. It should be easily digestible and sufficiently laxative. The evening meal should be light and no food or drink should be taken at bedtime. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JUNE 22, 1912.

1. WHITE, C. J. *The Shortcomings of Dermatology.*
2. *COLLINS, J., AND ARMOUR, R. G. *The Treatment of Syphilitic Diseases of the Nervous System by Salvarsan.*
3. *LEVY, D. J. *Simple Methods of Infant Feeding.*
4. HARRIS, M. L. *Adhesions of the Colon.*
5. SOMERS, G. B. *Uterovaginal Prolapse in Elderly Women. Technic of Operation.*
6. *Sore Throat and Milk Supply. A Discussion.*
7. WETHERILL, H. G. *Incomplete Abdominal Surgery.*
8. ROUS, P., AND MURPHY, J. B. *The Nature of the Filterable Agent Causing a Sarcoma of the Fowl.*
9. MANNING, W. J. *A Method of Continuous Sterilization of Instruments, Together with Aseptic Hypodermic Medication.*
10. BOYER, G. H. *A Cheap and Portable Apparatus for Forming Carbon Dioxide Pencils.*
11. ANDERSON, W. J. *A Catheter Knotted in the Bladder.*
12. KNIGHT, J. E. *Ten Pellagrins in One Family.*
13. SHEAF, P. A. *A Simple and Precise Method of Differential Leucocyte Counting when the White Cells are Greatly Increased.*

2. Collins and Armour have found in chronic syphilitic disease of the nervous system that the larger rather than the smaller doses of salvarsan must be used and repeated several times in order to be effective. It is even effective in not only the so-called acute stages, but even in some of the degenerative stages. Tabes, paresis and meningeal cases have shown marked and sometimes remarkable improvement.

3. Levy believes in the following principles of infant feeding: Milk dilutions instead of percentage formulas; long feeding-intervals; five feedings in twenty-four hours, four hours apart; mixed carbohydrates; the addition of 10 gm. of flour and the occasional use of oatmeal water as diluent; maltose dextrin as sugar; limiting the total quantity of milk mixture to one quart a day; the employment of broths, fruits and vegetables from the sixth month on. [E. H. R.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

MAY, 1912.

1. FOTHERINGHAM, J. T. *Pneumonia.*
2. *FETTEROLF, G., AND NORRIS, G. W. *The Anatomical Explanation of the Relatively Less Resonant, Higher Pitched, Vesiculotympanitic Percussion Note Normally Found at the Right Pulmonary Apex.*
3. *GIBSON, C. L. *Rupture of the Kidney in Children.*
4. *WILSON, L. B., AND WILLIS, B. C. *The So-called "Mixed" Tumors of the Salivary Glands.*
5. *MORGAN, W. G. *Duodenal Alimentation.*
6. *WILLIAMS, E. M. *Typhoidal Hemiplegia with Report of Three Clinical Cases and One with Necropsy.*
7. MILLER, A. F., LUPTON, E. J. S., AND BROWN, L. *A Study of the Blood of Patients with Pulmonary Tuberculosis Undergoing Sanatorium and Tuberculin Treatment.*
8. *LOVEJOY, E. D. *Treatment of Acne with Stock and Autogenous Acne Bacillus Vaccine.*
9. PROESCHER, F., AND DILLER, T. *A Fatal Case of Tetany with Autopsy Findings Showing Hemorrhages in the Parathyroid Glands.*
10. *ROWLAND, V. C. *Rheumatic Myositis.*
11. PEPPER, W., AND AUSTIN, J. H. *Adams-Stokes Syndrome, with Complete Heart-Block and Practically Normal Bundle of His.*
12. NEUHOF, S. *Clinical Observations of Reflex Vagus Phenomena Grouped in Symptom Complexes.*

2. Fetterolf and Norris offer a new and plausible explanation for the well-recognized fact that normally the percussion note of the apex of the right lung is less resonant than that of the left. By means of a study of the anatomy in frozen sections of the cadaver they have observed that in consequence of the anterior position of the vessels the right apex is encroached upon and reduced in size; also that the inner surface of the right apex is in apposition with the trachea, whereas the same aspect of the left is in contact with a layer of solid tissue. The different relations of mediastinal structures to the two lungs are clearly shown in the illustrations.

3. Gibson reports four original cases of traumatic rupture of the kidney in children. The clinical diagnosis in these cases is based as a rule upon the presence after injury of swelling in the loin and hematuria. Surgical interference is indicated in cases where the hemorrhage is severe and progressive or where, although no severe hemorrhage occurs at any one time, there are persistent recurrences. In the milder cases operation is not indicated. Also where there is reason to suspect injury to both kidneys or where there are serious injuries to other parts of the body, operation is to be avoided if possible.

4. Wilson and Willis report 56 cases of mixed tumor of the salivary glands. They divide these tumors into two clinical types; first, those which grossly are hard; and second, those that are soft. The first consist mainly of fibrous connective tissue or cartilage, and are usually benign, whereas a certain portion of the soft tumors are malignant. Of the 42 operated cases which were traced, 9 had recurrences, and of these 5 died.

5. Morgan reports favorably on Einhorn's method of alimentation by means of the duodenal tube. He describes the technic and reports cases.

6. Williams calls attention to the occurrence of hemiplegia following typhoid fever and summarizes the literature. He reports four original cases, in one of which autopsy revealed a thrombus in an artery.

8. Lovejoy has obtained encouraging results from the treatment of acne vulgaris by mixed vaccine containing both staphylococcus and bacillus of acne. The results with stock vaccine were as satisfactory as those from autogenous vaccines.

10. Rowland discusses the neglected subject of rheumatic myositis or muscular rheumatism. The literature of this condition is scanty and comes almost exclusively from Swedish and from German authors. From its association with acute rheumatic fever and endocarditis it seems probable that the myositis is a part of the generalized infection of acute rheumatic fever.

[F. W. P.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

JUNE, 1912.

1. *TURNER, G. G. *Pyloroplasty: With After Histories of Forty-Three Cases.*

2. *PETREN, G. *On the Late Results of Operations for Perforation of Gastric or Duodenal Ulcer.*
3. SMITH, C. *The Histology and Nature of the So-Called Foam-Cell Tumors: with a Report of Four Cases of Endothelioma Xanthomatism.*
4. DRAPER, T. W., AND MACCARTY, W. C. *Autolytic Excision by a Pentagonal Compression Suture: Its Physiological, Pathological and Surgical Significance.*
5. BRYAN, J. H. *A Further Contribution to the Study of Diseases of the Accessory Sinuses in Relation to Diseases of the Eye, and the Surgical Methods to be Adopted for Their Relief.*
6. BACON, G. *The Relation between Otitic and Intracranial Diseases.*
7. GOODALL, J. R. *The Origin of Epithelial New Growths of the Ovary.*
8. WILLIAMS, T. A. *Chronic Visceral Pain in Relation to Surgery and Psychotherapy.*
9. WEEKS, J. E. *The Newer Operations in Glaucoma.*
10. FREIBERG, A. H. *Codivilla's Method of Lengthening the Lower Extremity.*

1. Turner believes that pyloroplasty is the operation of choice in pylorospasm and an exceedingly useful way of dealing with the contracted pylorus that is so often met with in cases of hour-glass stomach, the main lesion having been overcome by gastro-enterostomy.

2. Petren establishes the fact, from after histories of 135 cases, that about half the ulcer patients who have gone through an operation for perforation are, after years, quite well, fully capable of work, and practically free from gastric symptoms, and that only a small proportion of the remaining cases have later been subject to severe ulcer symptoms. [E. H. R.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT. No. 20.

MAY 14, 1912.

1. *DÖDERLEIN, A. *Artificial Fertilization.*
2. *IMCHANITZKY-RIES, M., AND RIES, J. *Storing of Arsenic in the Uterine Glands as a Cause of Menstruation.*
3. SPIETHOFF. *Salvarsan and the Nervous System.* (To be concluded.)
4. SCHITTENHELM, A., AND WEICHARDT, W. *IV. Rôle of Hypersusceptibility in Infection and Immunity.*
5. ASCOLI, M., AND IZAR, G. *Production of Poisons by the Action of Blood Serum on Argon Extracts.*
6. v. DUNGERN, E. *Sero-Diagnosis of Tumors by Complement Fixation. II.*
7. BERGEL, S. *Experimental Work on the Cause of the Wassermann Reaction.*
8. *HEDINGER, M. *Effect on Nephritics of Renal and Cardiac Stimulants.*
9. JESS, A. *Ring Coloma from Blinding after the Last Eclipse of the Sun.*
10. WUNDER. *Tests of the Accuracy of Galvanometric Estimations of Electrolytes and Urea in Human Urine.*
11. THEDERING. *Individual Susceptibility of the Skin to Röntgen-Rays.*
12. LANGENSTRASS. *A Case of Diphtheria with Suffocation from Thickened Secretion.*
13. MENDLER, A. *What Can be Done in Congenital Coza Vara by the Cutting Operation?*
14. WOLF, W. *Untoward Effects of Hormol.*
15. FISCHER, P. *Prescription of Solution of Hydrogen Peroxide.*

1. Döderlein reviews previous attempts at fertilization by artificial measures in man and animals and reports a human case of his which was successful. The knowledge of this subject gained experimentally with animals seems to show that artificial fertilization might be more often attempted in practice than heretofore. The published human statistics are rather discouraging. Before attempting anything it is important to ascertain that the male can provide living spermatozoa.

2. In seeking the cause of menstruation, the writers worked on biochemical lines. They found that the uterus glands, the secretion before menstruation and the menstrual flow contain arsenic, but that after menstruation there is no arsenic in the uterine glands or in the secretion. They think that in studying this problem the functions of arsenic as well as of iodine and phosphorus should be further investigated.

8. Hedinger tried the effect of various diuretics in human nephritis and used the tests of Schayer for renal function. He concludes that the human kidney behaves much as does the animal kidney experimentally injured. He says that the effect of diuretics depends on the condition of the renal vessels. When these are severely damaged, diuretics have little effect and the prognosis is bad. Slight lesions may be indicated by a marked response to very small doses of a diuretic and then the prognosis is much better. [G. C. S.]

No. 21. MAY 21, 1912.

1. *v. BEHRING, E. *Clinical Significance of the Principles of Protein Hypersusceptibility.*
2. *WOLFF-EISNER, A., AND VERTES. *The Solution of the Manifestations of Hypersusceptibility to Albumens Proper to the Body.*
3. FRAENKEL, E. *The So-Called Pseudo-Myoma Peritonei.* (To be concluded.)
4. KLOTZ, R. *Etiology of Rachitis on Grounds of the Effect on it of Extracts of Hypophysis.*
5. KANNENGIESSER. *Late Results of Treatment with Salvarsan.*
6. HOFFMANN, R. *Calcium-Salts in Bronchial Asthma and Hay Fever.*
7. MICHAELIS, P. *Two Cases of Severe Injury to Bones from Stemmanns's Nail Extension.*
8. SCHMITT, A. *Perforation of the Intestine by Proctoscopy.*
9. BIRKENBACH, H. *Contribution on the Effect of Hormonal.*
10. BODE, F. *Stenosis of Both Ureters by a Foreign Body in the Vagina.*
11. FRANKENSTEIN, K. *Instrumental Dilatation of the Introitus Vulvæ.*
12. v. MENZ, F. *A New Artificial Tympanum.*
13. SPIETHOFF. *Salvarsan and the Nervous System.* (Concluded.)

1 and 2. These papers summarize the views of their writers with regard to anaphylaxis in the light of present knowledge. The views expressed are necessarily theoretical in part and too technical to be briefly summarized, but owing to the rapid advance and great change in status of this subject, the work of the authors is of the greatest interest. [G. C. S.]

No. 22. MAY 28, 1912.

1. ROLLY, F. *Reaction of Blood Serum Under Normal and Abnormal Conditions.* (To be concluded.)
2. RITTER, C. *Operative Treatment of Unilateral Septic Nephritis.*
3. GUGGISBERG. *Vaccine Treatment and Vaccine Diagnosis of Gonorrhea.*
4. HOFBAUER. *Use of Extract of Hypophysis in Practical Obstetrics.*
5. UFFENORDE, W. *Experiments on Apes as to the Value of Eye-Muscle Reactions in Labyrinthine Irritation and with Electrical Irritation of the Cerebellum.* (To be concluded.)
6. KONJETZUG, G. E. *Pathogenesis and Mechanism of Meniscus Injuries.*
7. HIRSCHEL, G. *Anesthetization of the Brachial Plexus in the Axilla for Operations on the Arm.*
8. FLATAU. *One Hundred Abdominal Extirpations of the Uterus Without a Death.*
9. PAYR. *Technic of Arteriovenous Transfusion of Blood.*
10. SCHARFF. *Exostosis on the Upper Surface of the Calcaneus.*
11. FRAENKEL, E. *The So-Called Pseudo-Myxoma Peritonei.* (Concluded.)
12. KANNENGIESSER. *Late Results of Treatment with Salvarsan.*

No. 23. JUNE 4, 1912.

1. *LANGE, F. *Distorsion of the Shoulder Joint.*
2. *v. BAEYER. *Flat Foot.*
3. FLEISCHNER, J. *Pantopon-Scopolamine Narcosis.*

4. Grossmann, J. *A New Modification of the Mathieu-Rémond Method of Estimating Residue.*
5. Blühdorn, K. *Our Experience with Diphtheria, 1910–11.*
6. Leede, W. *Tracheotomia Inferior with Small Horizontal Skin Incision for Diphtheria.*
7. Hans, H. *Urgent Indication for Esophagotomia Mediana, etc.*
8. Weber, A. *Control of Milk in the Country.*
9. Hilbert, R. *Cataract in Four Generations of One Family.*
10. Galland. *A Simple Operation for Phimosis.*
11. Junker, F. *Unfortunate Effects in Tuberculin Treatment.*
12. Happich, C. *Intraperitoneal Use of Camphor-Oil.*
13. *Rolly, F. *Reaction of the Blood Serum in Health and Disease.* (Concluded.)
14. *Uffenorde, W. *Experiments with the Eye Muscle Reaction in Labyrinthine Irritation and with Electrical Irritation of the Cerebellum.* (Concluded.)

1 and 2. These two articles are likely to be of interest to orthopedists.

13. Rolly reaches two conclusions experimentally which are of great importance. Firstly, that the diminution of alkalinity in the blood of uremic patients is too slight to support the views of those who see in uremia an acid poisoning; and secondly, that Porges, Salomon and Brug are wrong in the belief that in pancreatic diabetes there is no disturbance in the oxydization of sugar. It seems that there is a diminished power to oxidize sugar and that if there is any increase in the formation of sugar, this is relatively slight and of a secondary nature.

14. The work of Uffenforde may prove to be of great importance but is too technical to arouse general interest among practitioners. [G. C. S.]

Wiener Klinische Wochenschrift. No. 24.

June 13, 1912.

1. Suchanek, E. *The Question of Gas Phlegmon in Small Shot Injuries.*
2. Müller, R. *Wassermann Reaction. The Question of Antigen.*
3. Szekeres, O. *The Treatment of Scarlatina with Polyvalent Antistreptococcus Serum According to Moser.*
4. Feli, K. *The Technic of the Diazo Reaction.*
5. Rittenhouse, W. *Arterial Rigidity in Children.*
6. Pagenstecher, A. *Simulation a Century Ago.*
7. *Pagenstecher, A. *Acute Fever.*
8. Hamburger, F. *A New Classification of Pulmonary Tuberculosis.*
9. Elsching. *Conclusion to the Discussion on Indicanuria and Eye Diseases.*

7. Pagenstecher presents an historical contribution to the diagnosis of internal diseases. [R. M. G.]

Archiv für Klinische Chirurgie.

Vol. 98. Part 1.

1. Rehn, E. *Fat Transplantation.*
2. Rotter, J. *The Restoration of Continence after the Excision of Carcinoma of the Rectum.*
3. *Batzdorff, E. *Primary Carcinoma of the Appendix.*
4. Büdinger, K. *Pathological Changes in Bone Structure.*
5. Schoemaker, J. *Plastics on the Hard Palate.*
6. Wenglowski, R. *Fistulæ and Cysts of the Neck.*
7. Suchanek, E. *The Etiology of Cysts of the Spleen.*
8. *Lerda, G. *The Preperitoneal Anchoring of Operated Loops of Intestine.*
9. Unger, E., and Sturmann. *The Uses of an Aspiration Apparatus in Operating Rooms.*
10. Schepelmann, E. *The Repair of the Respiratory Passages.*
11. Voigt, J. *The Preparations of Catgut.*
12. Ewald, P. *Radiographic Findings in Joint Fractures and Foot Sprains.*

3. Batzdorff has collected a large number of statistics regarding carcinoma of the appendix, and finds that it was discovered twenty-eight times in the examination of 6,050 abnormal appendices. The diagnosis of this condition cannot be made before operation, as the symptoms are those of appendicitis; to avoid neglecting such a condition, therefore, all appendices which have given any trouble must, sooner or later, be removed.

8. Lerda presents a variation of the operation of Iswardi, of Turin, who showed that a piece of intestine could be kept outside the peritoneal cavity for four or five days without coming to harm. This procedure may be used in case of suture or if one is doubtful as to the viability of a portion of the gut. Lerda, after suturing the intestine, brings the affected loop through the hole in the peritoneum, suturing edges of peritoneum lightly to mesentery. The loop is then allowed to remain in a pocket formed of muscle and fascia and protected by the skin. If then a leak occurs, peritonitis does not result, and the breech can easily be repaired without a laparotomy. If a fistula results, it also may be cured without a severe, eviscerating operation. When the union is secure, the loop is easily replaced in the abdominal cavity. [G. G. S.]

Deutsches Archiv für Klinische Medizin.

May, 1912.

1. Strauss, H. *Nitrogen Metabolism in Its Relation to Uremia and the Prognosis of Nephritis.*
2. *Pel, L. *Family Hemolytic Jaundice, Besides a Few Remarks over the Presence of Bile Pigments in Blood and Urine.*
3. Oehme, C. *Diffuse Sclerosis of Muscles and Skin with Calcium Deposits.*
4. Gross, O. *Essay on the Knowledge of Acute Myelitis.*
5. *Jungmann, P. *Streptococci in Scarlet Fever.*
6. Voorhoeve, N. *Clinical and Roentgen-Ray Diagnosis of Gastro-Colic Fistula.*
7. Steffler, E. *Myeloblastic Leukemia and Presence of Myeloblasts in Common Myelogenous Anemia.*
8. Peirce, S. J. S. *The Content of Cholesterin and Cholesterin Bodies in Human Bile.*
9. Frey, W. *On the Pathology of Chronic Nephritis.*
10. Port and Akiyama. *Clinical Investigation of Blood Platelets.*
11. Brian, O. *General Infection with Bacillus Coli Communis.*
12. v. Ketly, K. *Remarks on the Etiology of Rheumatic Facial Paralysis.*

2. Pel, as a result of his studies, agrees with the other authors who have worked on the subject that bile pigments may appear in the blood and not in the urine. In regard to hemolytic family jaundice, he considers it a typical disease with variations in the blood picture as well as characteristic clinical phenomena. He considers that the presence of bilirubinemia is of diagnostic value in certain cases.

5. Jungmann in studying scarlet fever in regard to its relation to streptococcus found that in 25 cases of scarlet fever only 3 showed streptococci in the blood during life, and of these 2 died. In 37 cases they found streptococci on the tonsils. There was nothing characteristic in these streptococci from others either in their hemolytic or cultural characteristics. In the blood of people sick with or convalescent from scarlet fever there was no increase over normal in the antilysin content of the serum. [C. F., Jr.]

Die Therapie der Gegenwart.

April, 1912.

1. Zinn, W. *Metastatic Abscesses of the Kidneys and Paranephric Tissue Secondary to Boils.*
2. Moro, E. *Qualified Reflexes in Children and Their Clinical Importance.*
3. *Benthin, W. *The Induction of Labor Pains with Pituitary Extract.*
4. Impens, E. *The Excretion of Adalin.*
5. Sippel, F. *The Treatment of Diseased Nasal Mucous Membrane with Inhalations of Salt Water Spray.*
6. Meidner, S. *The Atophan Treatment of Gout.*

3. Benthin used pituitary extract in obstetric practice, and he considers it a sovereign remedy for stimulating labor pains. It is also a valuable and harmless means of differentiating between pregnancy pains and labor pains.

It is particularly valuable for weak second-stage pains, so much so that it generally makes the application of forceps unnecessary. [L. D. C.]

MAY, 1912.

1. CAHN, A. *Kussmaul's Cold Water Treatment of Febrile Diseases.*
2. *KLEMPERER, F., AND WOITA, H. *Experiments with Salvarsan Treatment in Scarlet Fever.*
3. FOCKE. *The Great Importance of Folia Digitalis Titrata and Its Differences from Other Digitalis Preparations.*
4. RIEDEL, R. *Melubrin, a New Antipyretic and Anti-neuralgic.*

2. Klemperer and Woita report interesting results in the treatment of 109 cases of scarlet fever with and without salvarsan. The cases occurred in epidemic form in Northern Berlin and were remarkably severe in height and duration of fever, in percentage of complications and in high mortality — 24.5% in the first 49 cases treated without salvarsan. The Wassermann test had been found positive in the severest cases, and in their difficulty the writers decided to try salvarsan. Thirty-nine severe cases were treated with "606," and of these 5 died, a mortality of 12.6%, or one half that of the other cases. The percentage of complications was also much smaller — otitis in 6.6% as compared with 14.3%, nephritis in 25% as against 43%, endocarditis in 3% instead of 16%. The effect of the remedy on the course of the disease was striking, especially on the temperature, an abrupt and permanent drop being the rule. In one case the Wassermann reaction disappeared four days after injection. The dose given was 0.1 to 0.2 gm. to infants, 0.3 gm. to older children, 0.5 gm. to adults. The writers hope that further experience will confirm their expectations of the real clinical value of salvarsan in scarlet fever. [L. D. C.]

ANNALES DE L'INSTITUT PASTEUR.

MAY, 1912.

1. BERTRAND, G., AND ROSENBLATT, M. *Studies on Hydrolysis of Saccharose with Different Acids in the Presence of Sucrase of Yeast.*
2. *NICOLLE, C., CONSEIL, E., AND CONOR, A. *Experimental Work Done on Typhus Fever at the Institute of Pasteur at Tunis during 1911.*
3. *ROMANOVITCH, M. *Investigations on Trichinosis.*
4. BODIN, E., AND LENORMAND, C. *Investigation on the Poisons Produced by Aspergillus Fumigatus.*
5. VIOLLE, H. *Consideration of the Gall Bladder as a Place for Inoculation. Contribution to the Study of Immunity and General Physiology.*

2. Continuing the report started in the last number, the authors in this article mention the animals which have a natural immunity towards typhus. These are the horse, sheep, dog and hen. In regard to treatment, they found that serum from patients convalescent was of some value. Of drugs they tried salvarsan and emetic. The latter they considered useless and the former useless and possibly dangerous. The use of adrenalin was followed with slight success.

3. Romanovitch in an excellent paper on trichinosis brought out the points in the pathology of the disease which are usually considered to be the correct interpretation of the lesions. In addition he added several interesting points about the serum of the animals during this disease. The serum of infected animals acquires toxic properties very soon after ingestion of the parasites (nine days). The toxicity varies towards different species. The attempts to show antibodies in the serum of infected animals have been unsatisfactory. Possibly some exist. A sure case of reinfection has been observed by this author which confirms the impossibility of producing immunity. There is no specific or abortive treatment. "606" is inactive. [C. F., JR.]

IL POLICLINICO.

APRIL, 1912.

MEDICAL SECTION.

1. *RIZZI, S. *A Contribution to the Study of the Wassermann Reaction in Clinical Symptomatology.*
2. BASILE, C. *The Identity and the Mode of Transmission of Leishman's Disease (Kala-Azar).*
3. MARCHETTI, G., AND CAPEZZUOLI, C. *A Contribution to the Study of the Mechanism of Oxygen Inhalations.*
4. FUA, R. *The Oral Rattling of Galvagni.*

1. Rizzi made an elaborate clinical study of the Wassermann reaction in a large number of patients suffering from many different diseases. He found it present in all cases where the luetic nature of the disease was clinically certain, including cases where the diagnosis could not be made from the therapeutic test or the anamnesis. In such cases the Wassermann test is invaluable. The reaction was absent in all of the writer's non-syphilitic cases. The results of the test in the face of specific treatment were variable. The writer asserts that the reaction is present in 50% of cases of hepatosplenomegaly of ill-defined etiology. The test is positive in 90% of cases of progressive paralysis, and in a high percentage of cases of tabes and myelitis. It is positive in some cases of mitral disease and may be negative in aortic lesions. It is always negative in pellagra, diabetes, Banti's disease, chorea and epilepsy and in many other conditions in which it has been reported positive. [L. D. C.]

MAY, 1912.

MEDICAL SECTION.

1. *COSCO, G., ROSA, B., AND DE BENEDICTIS, C. *A Case of Cutaneous Tuberculosis of Bovine Origin in Man.*
2. ANTONELLI, G. *Tuberculous Meningomyelitis.*
3. PRETI, L., AND POLLINI, L. *A Contribution to the Study of Metabolism in Pellagra.*
4. GROCCO, P. *In Regard to Oxygen Inhalations.*

1. Cosco, Rosa and De Benedictis report a case of cutaneous tuberculosis acquired by a veterinary surgeon from an infected knife. The bacillus isolated from the lesion was of the bovine type and when injected into calves and rabbits produced typical tuberculosis in these animals. The writers conclude that bovine tuberculosis inoculated subcutaneously into man has a strong tendency to remain localized and to heal; also that the bovine bacillus after remaining as long as three months and a half in the human body still retains its virulence for the ox. [L. D. C.]

Miscellany.

BIRTHDAY HONORS FOR BRITISH PHYSICIANS.

IN the list of honors recently published in England in connection with the celebration of King George's birthday, there appear the names of several well-known British physicians and surgeons.

Mr. Rickman John Godlee, P.R.C.S., Holme professor of clinical surgery at the University College Medical School, London, is made a baronet of the united kingdom.

The order of knighthood is conferred on Mr. Berkeley George Andrew Moynihan, professor of clinical surgery at the University of Leeds; on Mr. John Bland-Sutton, surgeon to the Chelsea Hospital for Women and to the Middlesex Hospital, London; on Dr. Abraham Ganod Thomas, chairman of the Newport (Wales) Hospital Board and member of the council of Cardiff University; and on Dr. St. Clair Thomson, professor of laryngology at King's College Hospital, London.

Besides these distinctions, a variety of other orders of merit, titles and honors are bestowed on a dozen other physicians distinguished in military and in civil practice.

Correspondence.

LETTER FROM PARIS.

ON THE PERISTALTIC HORMON.

PARIS, June 4, 1912.

Mr. Editor: The remarks in my recent letter concerning the advisability of circumspection in the employment of new and insufficiently tested remedies are further justified by what has recently occurred in the hormonal question.

Hormonal, or the peristaltic hormon, is a substance of the greatest interest, both from the point of view of physiology and on account of its valuable practical action; it is, in a word, a normal secretion of the duodenal and gastric mucous membrane under acid stimulation, that enters the general circulation, is perhaps stored up in the spleen, and serves as an exciter of peristaltic contraction, whence its name, from the Greek ὁρμάω. Discovered a few years ago by Starling, it was first brought into the range of practical therapeutics by Zuelzer, in 1908, in the form of an extract. It is to be had for clinical use in little phials of 20 ccm., the usual dose for an adult; this quantity can be injected either into the gluteal region, which causes pain and had better be mitigated with some such substance as eucain, or into the vein of the arm. During the first two or three years of its use it was reported to have no special deleterious effects beyond ephemeral malaise, chilliness, rise of temperature and vomiting, and, in particular, experimentations showed, after repeated injections, that it was not subject to the inconveniences of anaphylaxis. It has now been used on quite an extensive scale in Germany by Zuelzer, Henle, Denks, Borchardt, Pfannmüller, Henssner, etc., and a complete bibliography of the subject, almost exclusively German so far, will be found in the *Deutsche Medizinische Wochenschrift* of April 4, 1912, page 645.

The effect of such an intravenous injection is almost instantaneous on animals under experimentation. Thus, if a rabbit be chloralized, the abdominal cavity opened and the body immersed in a warm physiological solution, the intestinal coils are seen floating motionless in the liquid; but the moment an injection of hormonal is made into the marginal vein of the animal's ear, normal peristalsis is observed to set in, beginning at the duodenum and extending slowly down the intestine to the rectum. The intestinal contents can be seen gradually passing downwards until they are finally ejected at the anus. With man the action of hormonal is not quite so rapid, its effect usually taking place in a few hours, one to five, after the injection.

From a practical point of view this substance has been tested by both physicians and surgeons. The former have of course resorted to it in the disorder that they encounter at every turn in life, chronic constipation. Here they have observed two important points: one, that in a fairly large percentage of cases hormonal appears to have no action whatever; the point remains yet to be settled whether this is due to the patients themselves or to variations in the solution, which, it should always be remembered, is by no means a well-defined product, like adrenalin, but merely an extract of organs, taken from various viscera and from different animals, for which reason it seems impossible to expect any species of standardization of the preparation; the other, that in cases where it does act successfully, the results are almost brilliant, as one injection will suffice to put the patient on the right track for months and even years! A very neat comparison has been made of this result with that obtained by shaking a clock that has stopped. The physicians whose experience with it is greatest in chronic constipation say that its effect can almost be foretold, when a careful diagnosis of the form of constipation has first been reached: In the purely atonic form success is practically certain, and stools become regular after a single injection; whereas in the spasmodic forms, with contracted, hard colon, with or without pain, also in all cases of constipation of mechanical origin, peritoneal adhesions and tractions, or pressure (tumors, displacements, etc.), no results whatever will be obtained, as was fairly natural to expect.

But unquestionably the more interesting side of this subject is the surgical one, as the cases with which operations have to deal are infinitely more dramatic and difficult to handle. In surgery the hormonal injections have been used with three classes of patients: intestinal paralysis after ordinary, non-complicated operations without suspicion of infection or peritonitis; in intestinal paralysis following septic peritonitis; and in the distended abdomen that may or may not be due to mechanical obstruction. Here again the results obtained have varied according to category. It is manifest that such injections should never be resorted to in face of a positive diagnosis of mechanical obstruction; to do so is to waste valuable time, the only salvation for such patients lying in the direction of a very early operation. The only possible excuse for a hormonal injection in an apparent case of intestinal obstruction is where no positive diagnosis can be made, but where it is desired to give the patient the very slim chance that his precarious situation may be due to intestinal paralysis without mechanical obstacle, one such case at least having been published by Zuelzer, with satisfactory issue. In instances where intestinal paralysis is dependent on toxic peritonitis, the outlook is very bad; evidently hormonal can have no action whatever on the toxic process, and, if it acts at all, can only do so on the element paralysis, still, even in such desperate circumstances as these the latter effect has been observed, the patient's intestinal contractile power returning to a certain degree after the injection, although she succumbed a short time afterwards to the progress of the infection. But in the first category of cases, those in which there is simple post-operative intestinal paralysis without infection, the results have in quite a number of instances been most satisfactory, regular peristalsis reappearing within a comparatively brief period after the administration of an intravenous injection; it has, however, been found more advisable to help this action along with a brisk purge.

When we take into consideration the gravity of these cases of post-operative intestinal distention, the difficulty of dealing with them successfully, the surprising results that have been obtained in them in a number of cases with the hormonal injections, and the practically unanimous testimony of all who have experimented with them as to their innocuity, with the exception of the symptoms already mentioned and which all hands described as purely temporary and of no particular importance, it is perhaps hardly a matter of surprise that every one in Germany was congratulating himself on the acquisition of a new and really valuable element to our therapeutic armamentarium. So strong was the conviction throughout the profession as to the harmlessness of these injections, and their efficacy in suitable cases, that only last September an author expressed himself as follows on this question: "But these symptoms, which are far from constant, are always of short duration and have never presented the slightest gravity. They are negligable when compared with the happy results of hormontherapy, and must not lead to its abandonment." This situation was, however, altogether too serene to last, and the very circumstances of the case ought to have led spontaneously to a more guarded state of mind, — the intravenous injection of an ill-defined organic product was sure, sooner or later, to lead to trouble. Anyhow, the reverse of the picture has now begun to be reported, and in the number of the *Deutsche Medizinische Wochenschrift* already referred to, Dr. F. A. Hesse, of the Greifswald Surgical Clinic, relates three cases, one of his own and two from other observers, in which a condition of more or less serious cardiac collapse ensued upon injections of hormonal for intestinal paralysis. Now, as certainly the instances in which hormonal has so far been used for this condition cannot possibly exceed a very few hundred, it is evident that three accidents constitute already a percentage to the discredit of the method that cannot but be taken into serious consideration.

Furthermore, as Dr. Hesse very pertinently remarks, these three accidents occurred in hospital practice, where everything necessary in an emergency is right at hand, both material and *personnel;* whereas if they had occurred in private practice, say for chronic constipation and without any warning to the entourage that the method had certain drawbacks, the outcome for the unhappy practitioner might have been disastrous.

The first instance, due to Dittler & Mohr, was, in resumé, as follows: Half an hour after an intravenous injection of 14 ccm. of hormonal, sudden and severe collapse, with fall in arterial tension from 125 to 100 and with marked rise in temperature; the condition was only relieved by injections of camphor; in spite of this untoward occurrence the specific action of the hormonal took place. This case led the authors to the belief that the action of hormonal is by no means a specific one, but is due precisely to this fall in blood pressure that it produces. The second case, that of Kretschmer, is very similar: immediately after an injection of hormonal, severe collapse, which only yielded to profuse stimulation of all kinds and, in particular, to injections of adrenalin and normal salt solution. Kretschmer likewise thinks that this accident was due to the fall in pressure produced by the hormonal. The third instance, Hesse's case, is given in fuller detail: woman of forty-three, with strangulated hernia; operation easy, but for the two following days almost total intestinal paresis and a drum-like abdomen. Twenty ccm. of hormonal were then injected in the vein of the left arm, but a most threatening condition of collapse set in almost before the injection was completed: unconsciousness, deep, slow and interrupted breathing, pulse no longer perceptible, pupils wide open and without reaction, disappearance of cornea reflex, and temporary clonic movements of body and limbs without predominance on either side; the color of face and lips, however, remained good. After free use of camphor injections the patient came gradually back to consciousness, and she finally recovered entirely without serious ulterior effects. The result of the injection on the intestine was, notwithstanding the collapse, most satisfactory, and with the help of some ol. ric. the paresis was entirely relieved. Hesse makes only hypotheses as to the reason for this collapse, no satisfactory explanation occurring to his mind, but he closes his remarks with a very earnest warning against the employment of this remedy *à la légère* and otherwise than in selected cases, and, if in private practice, only after due warning to the patient's entourage that its use is sometimes followed by very unpleasant consequences.

Thus is once more illustrated the fact that it is well to be prudent, very prudent, in the use, particularly in private practice, of all these new remedies, and perhaps more especially of those of organic origin. The whole of their chapter is so obscure, so entirely in its infancy, that it is unjust to others to take up with precipitancy and apply to our fellow-beings remedies that have been insufficiently treated and that we probably would refuse flatly to have administered to ourselves. The confidence of many patients in their medical director is so limitless and blind that it is our evident duty to be more than careful not to expose them even to infinitesimal risk by wishing to appear abreast of the times. The conditions in which hormonal has been most successfully used are no doubt grave, and might appear to warrant our taking certain risks and responsibilities; but to such an eventuality it is imperative, in face of the knowledge we now possess as to hormonal, to look first into the state of the arterial pressure, to give warning that the treatment is not always free from untoward consequences, and possibly to guard against accidents by a preliminary injection of adrenalin and normal salt solution.

Any one wishing to look up the hormon question in general will find a good article by Hallion in the *Presse Médicale*, May 18, 1912. "*S.*"

APPOINTMENTS.

SYRACUSE UNIVERSITY MEDICAL SCHOOL has called the following men to its corps of instruction and they have accepted:

As Assistant Professor of Bacteriology, Leverett Dale Bristol, A.B., M.D., Johns Hopkins, of St. Paul, Minn; as Instructor in the Department of Histology, Earl V. Sweet, A.B., M.D., Cornell, of Phoenix, N.Y.; as Instructor in Surgery, Albert G. Swift, M.D., Syracuse, of New York City; as Instructor in Pathology, John W. Cox, M.D., Syracuse (this position was secured by scholarship).

DR. JOHN LEWIS BREMER, of Boston, has been recently appointed assistant professor of histology in the Harvard Medical School, from Sept. 1, 1912.

DR. HOWARD AUGUSTUS LOTHROP, of Boston, has been recently appointed assistant professor of surgery in the Harvard Medical School, from Sept. 1, 1912.

DR. MARSHALL FABYAN, of Boston, has been recently appointed instructor in comparative pathology in the Harvard Medical School from Sept. 1, 1912.

DR. HERMAN FRANK VICKERY, of Boston, has been recently re-appointed instructor in clinical medicine in the Harvard Medical School, from Sept. 1, 1912.

DR. EUGENE L. OPIE, professor of pathology in Washington University, has been appointed dean of the Washington University Medical School.

RECENT DEATHS.

DR. JUAN GARCIA PURON, who died recently at Llanes, Asturias, Spain, was born in that town in 1854. He obtained his medical degree in Spain, and later practiced his profession in Mexico and in the United States. He was the author of several Spanish textbooks. He is survived by his widow, who was an American.

DR. JOHN PATTEN WALES, who died recently at Wilmington, Del., was born in 1831.

DR. ROBERT J. DEVLIN of New York, died on June 26. He was born in New York City on July 27, 1860, and was graduated from the College of the City of New York in 1878 and the College of Physicians and Surgeons in 1881; after which he served as interne at St. Luke's Hospital, New York. For more than twenty-five years he had been dermatologist to the Northern Dispensary, and at the time of his death he was also consulting physician to the hospital of the French Benevolent Society.

BOOKS AND PAMPHLETS RECEIVED.

Monographs of the Rockefeller Institute for Medical Research. No. 4. June 24, 1912.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 22, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	10	—
Chicago	534	156	Waltham	7	1
Philadelphia	—	—	Brookline	5	—
St. Louis	—	—	Chicopee	4	3
Baltimore	—	—	Gloucester	4	—
Cleveland	—	—	Medford	8	2
Buffalo	—	—	North Adams	7	1
Pittsburg	—	—	Northampton	6	1
Cincinnati	—	—	Beverly	2	—
Milwaukee	—	—	Revere	3	—
Washington	—	—	Leominster	4	2
Providence	—	—	Attleboro	6	2
Boston	194	46	Westfield	8	3
Worcester	—	—	Peabody	3	—
Fall River	29	8	Melrose	3	—
Lowell	32	13	Woburn	3	—
Cambridge	17	3	Newburyport	3	2
New Bedford	29	10	Gardner	3	1
Lynn	20	3	Marlboro	—	—
Springfield	30	6	Clinton	4	1
Lawrence	19	8	Milford	—	—
Somerville	14	5	Adams	0	0
Holyoke	—	—	Framingham	2	—
Brockton	18	5	Weymouth	—	—
Malden	5	2	Watertown	3	2
Haverhill	11	1	Southbridge	3	1
Salem	11	2	Plymouth	3	1
Newton	6	0	Webster	3	1
Fitchburg	6	—	Methuen	0	0
Taunton	10	2	Wakefield	—	—
Everett	9	—	Arlington	—	—
Quincy	—	—	Greenfield	5	1
Chelsea	10	3	Winthrop	1	—

Original Articles.

CANCER OF THE UTERUS.*

The Operable Cases. The Operation of Choice. A Study of 309 Cases at the Massachusetts General Hospital from 1900 to 1910.

BY FARRAR COBB, M.D., BOSTON, MASS.,

Assistant Visiting Surgeon to the Massachusetts General Hospital.

Only by comparative analysis can we estimate the true value of our work. An honest study of end results is always most instructive, but only when our own results are compared with those of other workers in the same field the world over can we determine how nearly we approach or fall away from the highest standards. In the year 1901 I became interested in the radical abdominal operation for cancer of the cervix and familiarized myself with the work of J. G. Clark in this country and of Rumpf, Reis and Wertheim in Europe. Wertheim's work, as developed in his published writings from 1889 until his last great monograph, published in 1911, especially appealed to me. I have, whenever opportunity offered, done the radical operation substantially in accordance with his method, with wide dissection of the pelvis and ureters and removal of as much as possible of the parametrium, and, although the number of my cases has been small, over 50% of them are alive and well for more than five years since operation. One case was reported in the Boston Medical and Surgical Journal a few years ago and has remained well for over eleven years.

When on Aug. 1 last the new system at the Massachusetts General Hospital of assigning all material of a certain kind to one operator went into effect, I was glad to be given the cases of cancer of the uterus. I recognized then as now that my results must be compared with Wertheim's. I am glad to find that, in spite of my scanty material, my record of mortality and cured cases can safely bear such comparison.

Within the last few months one of the leading surgeons in this city, and another equally distinguished surgeon from a great Western city said to me, "If we are sure of anything in our experience covering many years, it is that the abdominal operation for cancer of the cervix is an unjustifiable procedure, inasmuch as the chances of ultimate cure are very small and the immediate mortality extremely high." On this subject these two great surgeons, whose opinions on most questions would be accepted by me, were uneducated. Such an opinion from such men would be taken as the true one by most physicians and surgeons and undoubtedly would work for much harm in any community. These remarks strengthened my belief that there is urgent need for education on the subject of cancer of the cervix, — education of the surgeons, of the medical men as a whole and of the great lay public, — and that until a vigorous campaign of education has been carried on for a long time, the majority of women suffering from this disease will continue to be deprived of their proper chance for life, as, beyond question, they have been in the years that are past.

Sampson, one of the enthusiastic workers on this subject in this country, writing in 1904 a paper based on the work at Johns Hopkins Hospital, says, "It is little wonder that the laity and even some physicians consider cancer of the cervix of the uterus an incurable disease, for over three-fifths of the patients admitted to this hospital with carcinoma cervicis uteri came too late for anything but palliative treatment, and probably over three-quarters of the patients operated on will die from cancer within five years of the operation. Our only hope of bettering this condition is in an earlier diagnosis and also in doing the most radical operation possible, especially in the earlier cases, for in these there is the best chance of cure."

There is no longer any doubt but that the radical operation for cancer of the breast has given a gratifying percentage of cures. An increasing number of medical men are realizing that cancer of the stomach can be cured by a radical operation if the cases are sent to the surgeon sufficiently early. Cancer of the uterus has been regarded by many, however, as a hopeless proposition anyway, and there is no common agreement as to the operation of choice. In all countries the arguments for and against abdominal, vaginal or para-vaginal methods are still going on. I regret to say that some are defending incomplete vaginal operations with the galvano-cautery by the fact that Byrne, in 1889, reported 19% of cures by amputation of the cervix with the galvano-cautery in a series in which the pathological diagnosis of many of the cases could be fairly questioned. This, however, is not meant to throw discredit upon the valuable work of Byrne.

In the eleven years from 1898 to 1909 inclusive, Wertheim had ample material and by a carefully planned scheme was able to follow all his cases. Of the cases operated on he has cured 42.9%; that is to say, out of 247 cases, 106 have been free from recurrence for five years and over. His cases were by no means selected ones; many of them would have been called inoperable by most of us here; truly a magnificent showing. He gives complete reports of 500 operated cases; of these, 93 cases died as a direct result of the operation, an immediate mortality of 18.6%. This mortality diminished strikingly as his experience grew, — 30 deaths in his first 100 cases; in the fourth 100 cases, only 9 deaths. Of the first 250 cases, 63 died as an immediate result of the operation; of the second series of 250 cases, only 30, an operative mortality of only 12%. Of this second series many cases are free from recurrence from one to four years.

It seemed to me that a study of the cases at the Massachusetts General Hospital for eleven years, 309 in all, would be of decided value educationally, and important from a comparative point of view now and in relation to my future

* Read at the annual meeting of the Suffolk District Medical Society, April 27, 1912.

work. We cannot in fairness, however, compare the work of a large number of surgeons working intermittently with the results of a highly trained specialist with abundant material working continuously. In our work we find much to discourage, yet much that is creditable, and I think our results compare well with those of any other hospital in the United States. Cullen, in his fine book, "Cancer of the Uterus," speaking of the end results in 61 cases of squamous cell cancer of the cervix operated on at Johns Hopkins, says, "We learn some interesting facts, but the results as a whole are most distressing."

By radical operation I mean substantially that done by Wertheim, which, concisely, is the removal of the uterus and a liberal portion of the vagina through a median abdominal incision with thorough dissection of the ureters, the bladder and the removal of as much parametrial tissue as possible; the regional lymph glands to be removed only if palpably enlarged. It is an operation difficult, tedious, and one to be done only by highly trained men; this the profession and the public must be made to understand.

In the eleven years from 1900 to 1910 inclusive, 309 cases of cancer of the uterus were admitted to the Massachusetts General Hospital, including cases of cancer of the cervix and cancer of the body of the uterus. Cancer of the uterus usually means squamous cell cancer of the cervix. Our series of cases includes a small number of adenocarcinomata of the cervix, but by far the great majority of the cases are squamous cell disease of the cervix, with a small number of cases of cancer of the body. In discussing the radical operation and the late results, cases of cancer of the cervix have been distinctly separated from those of the body of the uterus, since it is well known that cancer of the fundus is a comparatively favorable form for cure by a simple hysterectomy either abdominal or vaginal. Cancer of the cervix is the formidable disease and the one that demands the radical operation. Wertheim's 500 cases are all cancer of the cervix, and the important part of my paper from an educational point of view relates to this form.

Of the 309 cases, 3 refused any operation. The remaining 306 cases have been divided as follows:

(*a*) Inoperable,	52
(*b*) Palliative operations,	148
(*c*) Vaginal hysterectomies,	14
(*d*) Abdominal hysterectomies,	92
	306

Abdominal hysterectomies embraced the more or less radical forms of operation, including the operations in which a combined abdominal and vaginal operation was done.

In spite of painstaking efforts to trace all the cases, the end results in some could not be obtained; undoubtedly nearly all untraced are dead. Wertheim followed from the beginning of his work a system of registration and subsequent investigation by which he kept in close touch with his cases and obtained frequent examinations or reports. Beside his, our records are very incomplete. Since beginning my special work on this subject I have adopted a plan to follow all the cases operated upon by myself, impressing the importance of this upon the patient, her family and her physician; and at stated intervals each year will communicate with the cases and have them report for examination if possible. One important lesson from this large series of cases, the work of many men, is that with this subject, as well as with other subjects in most of our large hospitals, there is great need for some effective system of completing the hospital records from the standpoint of end results.

It is interesting to compare the number of cases admitted to the hospital each year with the number of cases reported in the state; while the number of cases at the hospital diminished, the cases of cancer of the uterus throughout the state increased. This means, I think, that as the number of small hospitals in suburban cities and towns increased, they naturally took some of this material from the larger institution.

Our statistics simply corroborate what is already known in regard to the relation of age, heredity and pregnancy to cancer of the uterus. The greatest number of cases were between the years of forty-one and forty-five. The youngest patient was twenty-one. In 9% there was a family history of cancer. The majority of the cases had borne children.

Two great questions are most urgent:

1. How can the lay public and the medical profession be taught the importance of early diagnosis?

2. In what cases is a radical operation justified?

On these two questions there is crying need for widespread education.

Of the 306 cases, 52 were inoperable in the opinion of the surgeons who examined them, and 148 were thought unsuitable for anything but a palliative operation; in other words, 200 cases, or almost two-thirds, came to the hospital too late, an operability of 35.2%. Of these we have been able to follow to the fatal end, 133. This proportion of hopeless cases is about the same as in most hospitals in this country. Wertheim saw and examined in eleven years 1,096 cases; 519 were seen too late, an operability of 47.3%. This appalling lack of operability is due to popular ignorance as to the nature and insidious onset of the disease; also to the neglect of medical practitioners to examine the cases, or to recognize the importance of the conditions found on examination, and also, especially in this country, to the lack of knowledge on the part of surgeons as to what constitutes an operable case.

Since last August more than once I have had patients say to me, "I did not realize that there was much the matter with me, but I consulted Dr. —— because of some irregular flowing and he told me that I was going through the turn of life and did not examine me." Only two weeks ago a patient, a trained nurse, gave me a history

of being treated by a doctor in one of our neighboring towns for irregular flowing and leucorrhea for over ten months. Upon examination I found hopeless cancer of the cervix and upper part of the vagina and pelvis. Cases like these we know are not uncommon, and until we can teach convincingly that irregular bleeding at any time in a woman's life may mean cancer and always demands investigation by a competent man, we will continue to have an appalling list of hopeless cases and avoidable deaths.

We have been successful in teaching the dangers and cure of tuberculosis and of gonorrheal ophthalmia, and we are teaching boldly in public sex hygiene and discussing sex problems. The difficulties in the way of teaching the public about cervical cancer are great, but I believe they can be overcome and I hope later in the year to ask your co-operation and help in some scheme by which we can accomplish some good in this way. In these days of social service work, free press, settlement houses and church activity, much can be done if we try hard. Educating the practitioners of medicine as to the seriousness of the matter and the importance of an examination would not be difficult if every medical society in the state could be aroused to join in some effective campaign of instruction.

Any statistics in regard to the duration of symptoms can be of little value because of the different degrees of malignancy in different cases, and because of inaccurate observation on the part of the patients. In this group of 200 inoperable and palliated cases, the average duration of symptoms before the patient came to the hospital was eleven and one-half months. Undoubtedly cancer of the cervix may be present for many months before the first symptoms are noticed. Some cases are much more rapid in their growth than others. Cancer of the cervix may have gone to an inoperable stage with practically no symptoms and still may live for years, as is proved by one of our cases who came to the hospital three weeks after the first symptoms were noted, was found to have inoperable disease, yet lived four years and eight months.

The average duration of life of the cases that were not operated upon at all was seven and one-third months from the time they left the hospital. Several patients died within a month after leaving the hospital.

A palliative operation ought to be done whenever possible to stop hemorrhage and offensive discharge, to prolong life, and always to promote mental comfort and happiness. A thorough palliative operation, with the curette and actual cautery, will prolong life. In 148 cases either a palliative, exploratory or diagnostic operation was done, — 122 cases were cancer of the cervix; 26, cancer of the body. Please note that in only 9 cases was an exploratory laparotomy done. This will be referred to again in discussing the necessity of exploratory laparotomy in determining the operable cases. In the majority of the cases of cancer of the cervix the operation was that of curettage and cauterization, — in 18 cases amputation of the whole or a portion of the cervix was done, with or without the use of the curette and cautery.

Three cases died in the hospital, an immediate mortality of approximately 2%. One case died of diffuse peritonitis from a ruptured purulent cyst, 2 of general carcinomatosis and exhaustion.

It was possible to trace 94 cases; 85 have died, 9 are living. The average duration of life was twelve and one-half months, as contrasted with seven and one-third months in the cases in which no operation was done. One case of adenocarcinoma of the cervix is alive and well without recurrence at the end of eleven years, proving that in a small percentage of cases a partial operation may cure.

I believe that in too many cases the diagnosis "inoperable" is made and the patient sent away without any attempt to prolong life and alleviate suffering. I feel it the duty of every surgeon, when it is certain that a radical operation is inadvisable, to make an earnest effort toward prolongation of life by a complete curettage and a slow and deliberate charring with the actual cautery, and to follow up the after treatment. It should be remembered that curettage without the use of the cautery is unwise, and that the cautery itself probably has a positive influence in checking cancer growth. Doubtless Byrne was right when he stated that the cautery exerts some strong modifying influence on pathological processes much deeper than the surface actually cauterized and that there is hardly any doubt that the developmental activity of the cancer cells will be arrested and permanently destroyed at a distance quite remote from the surface upon which the cautery is used. Many of these cases will come to repeated cauterizations. The growth may be kept down and the discharge lessened and deodorized by the use of proper applications. The best is a saturated solution of iodine crystals in pure carbolic acid applied once in four days to the diseased area, taking care to protect the surrounding tissues. Constitutional treatment with bromide of arsenic and tincture of iodine and opium, in accordance with the principles laid down by Dr. George W. Gay in his paper in the BOSTON MEDICAL AND SURGICAL JOURNAL, March 11, 1909, should be directed.

In discussing later what are the operable cases, I emphasize my belief that a large number cannot be judged unsuitable for radical operation until an exploratory laparotomy has been done. In the cases in which opening the abdomen has demonstrated the impossibility of a radical dissection, I suggest the tying off of the blood supply of the uterus as an extra palliative measure, on the principle of starving the malignant growth as advocated and practiced in malignant growths of the head and neck, especially by Dawbarn, of New York, after which a curetting and cauterizing should be done. I have done this in two cases without complications. At first I thought that this procedure was a new one, original with me, but since beginning to write this paper I have become familiar with the work of Charles Ryall,

surgeon to the Bollingbrooke Hospital and the Cancer Hospital of Brompton, England. He has ligated the uterine and ovarian arteries, and in over twenty cases has tied off the internal iliacs with decided advantage and no complications. W. S. Bainbridge, of the New York Cancer Hospital, has also done this and, in addition, recommends ligation of the middle sacral artery. I intend to follow Ryall's method in a series of cases and test its true value. Ligation of the arteries does not increase materially the risk of the exploration; in skilled hands it can be done rapidly. I believe in this disease any risk is justifiable if life can be saved or prolonged. The surgeons who are jealous of their immediate mortality records should not operate for cancer of the cervix.

What is an operable case? Two hundred cases of our 309 were pronounced as unfit for radical operation. This conclusion represents the opinions of many different surgeons. It is not unlikely that some of the cases regarded by some of the men as beyond surgical aid might have been considered by certain others as suitable or even fair risks. The fact that of all these cases, only nine were given the advantage of exploratory laparotomy proves to me beyond question that in many a true decision could not have been made.

If the entire pelvis be filled with a hard mass, uterus fixed and vagina indurated well down toward the vulva, there is no doubt but that such a case is inoperable, but in many cases no bimanual examination, with or without an anesthetic, can determine positively that the case is not one for radical operation; fixation of the uterus, indurated masses in one or both broad ligaments, may be due purely to inflammatory tissue, adhesions, pus tubes or cysts. Within three months I have operated upon two cases which had been pronounced inoperable by other men, because bimanual examination had found fixation and induration. Upon opening the abdomen the cause of the induration and fixation was found in one to be due to double pus tubes, and in the other to adhesions following an old ectopic pregnancy. A radical operation for the removal of the uterus was done successfully. To go further, even if fixation and induration is due to cancer, many cases should have the advantage of exploratory laparotomy because it is certain that some of the apparently desperate cases of cancer, even involving the bladder, can be saved. Of Wertheim's 106 cured cases, he states that there were no less than 10 which had been considered inoperable by very worthy men. In 9 others the wall of the rectum already was involved and in 6 others the bladder was so markedly fixed that its loosening was very difficult. In several others the parametrium was so widely infiltrated that in separating it from the pelvic wall it gave the operator the impression that he was cutting through carcinomatous tissue. The one of my own cases who has lived the longest after operation, namely eleven years, a case reported in the BOSTON MEDICAL AND SURGICAL JOURNAL, Jan. 10, 1907, was a case in which the left ureter had to be dug out of a mass of apparent disease, and in which the iliac glands on both sides were markedly enlarged and were removed.

Since Aug. 1 I have operated on two cases previously operated upon palliatively by other men, in which cases I found it possible to do a radical operation, although in both of them it was necessary to open the bladder. These cases made good recoveries and are free from recurrence thus far. In the face of such evidence as Wertheim's, and my own experience, I believe that there are a number of cases in which none of us have the right to deprive the patient of the chance of a radical operation until we have opened the abdomen. The border-line cases will be often most difficult, involving resection of the bladder or ureter, but without operation death is certain, and we know that with it a definite percentage of cases are cured.

When on cystoscopy there is a prominence of the trigone it is an indication that the carcinoma has invaded the vesico-cervical septum; and, conversely, if there is no prominence of the trigone, operative complications on the part of the bladder need not be feared.

But even if the cystoscope should show probable invasion of the vesical septum, a radical operation with resection of the bladder would not be impossible.

The general condition of the patient must be considered in deciding upon the kind of operation. The long, tedious and possibly bloody abdominal operation should not be attempted in feeble subjects. This operation is contra-indicated also in the presence of marked adiposity. In such cases vaginal hysterectomy should be substituted. For the feeble and cachectic cases, a simple vaginal hysterectomy is the operation to be done. In certain of the adipose cases it may be possible to do the paravaginal or radical vaginal hysterectomy, the operation of Schuchardt. One of my fatal cases this fall was that of a very fat woman in whom a vaginal hysterectomy was impossible on account of the impossibility of pulling down the uterus because of firm intra-abdominal adhesions, subsequent to a previous laparotomy. Abdominal hysterectomy was done with great difficulty. Death resulted from general peritonitis.

During the time Wertheim was doing his 500 abdominal operations he performed vaginal hysterectomy only 21 times, 5 times for high grade adiposity, in 11 cases because of cardio-renal conditions and in 5 cases because of very early cancer diagnosed only by the microscope. One case died of general peritonitis.

Care in pathological examinations. — Unless great care is used, pathological examinations of tissue from the suspected cervix may be in error. The most favorable cases for cure are those in which the diagnosis of cancer is made by the microscope. The sources of error are depending on curetting without excising pieces, failure to obtain tissue from the diseased area, and incomplete study of the tissues by the pathologist. In suspicious cases wedge-shaped



FIG. I. The uterine artery lifted up by finger, preliminary to ligating it at its point of origin. The ureter is below and under the finger. (After Wertheim.)

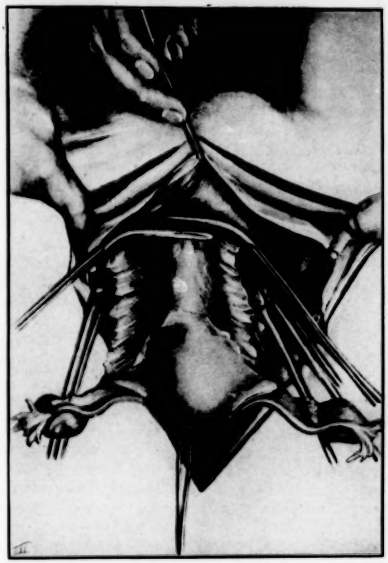


FIG. III. Showing application of right angled clamps to vagina. (After Wertheim.)



FIG. II. Bladder and ureter freely dissected. Uterine artery tied at its point of origin. Iliac vessels and glands exposed. (After Wertheim.)

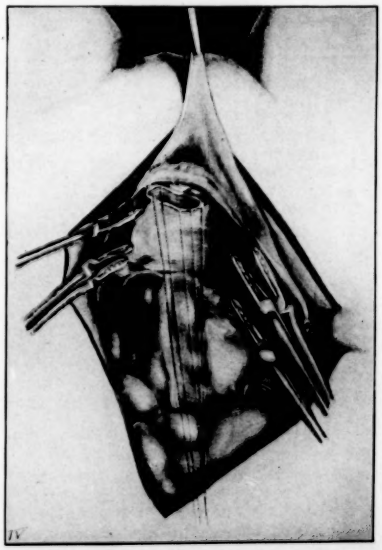


FIG. IV. Vagina cut across. Curved clamps used to control hemorrhage in removing parametrium. (After Wertheim.)

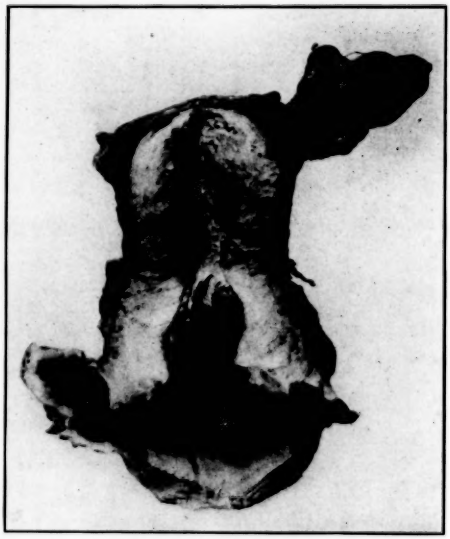


FIG. V. Uterus removed by Dr. Cobb in April, 1912. Showing large vaginal section and area of disease. In this case glands on both sides, nine in all, were removed — case recovered.



FIG. VI. Posterior view of same uterus showing removal of parametrium on both sides.

pieces should be cut from more than one place, should involve the area of granulation tissue under suspicion and the normal mucosa adjoining. A great many serial sections should be cut and examined with care. As an illustration of the possibility of error, there were three cases in our series in which no operation was done because the pathological department reported in one case "blood clot," in two, "simple glandular hypertrophy." These three cases died of typical cancer of the cervix clinically.

First symptom. — Our series corroborates what is common knowledge — that the usual early symptom is irregular hemorrhage. This was present in 130 cases. Pain in the pelvis and back is said to be the first symptom in 53. Loss of weight and strength in 7. Some foul discharge in 39.

Immediate mortality and results. — It is possible to determine exactly the immediate mortality of the different kinds of operation in our series of cases, and to accurately compare it with that of other operators. It is not possible, however, to so accurately estimate the percentage of cures because of the impossibility of tracing all the cases. I have taken what seemed to be the fairest method, — the number of cases alive and free from recurrence five years after operation as compared with the total number of cases traced.

Vaginal hysterectomies. — Total number, 14. Immediate mortality, nothing. Three cases cancer of the body, no cures. Eleven cases cancer of the cervix, of which 8 were traced. Cures, 2, or 25%. I believe it is true that the simple vaginal method in the hands of numerous men with no special training or experience is the safest and will give a greater per cent of cures than the abdominal method in the same hands, but I also believe most earnestly that cancer of the cervix should be operated on only by men specially educated and trained, and believe it proved beyond controversy that for them the operation in the majority of cases is the radical abdominal. After study of the results of special operators in this and other countries it must be admitted that the simple vaginal hysterectomy can have no place as an operation of choice for cancer of the cervix except in very fat subjects and in those cases where it is wise to do a rapid and comparatively safe operation because of the poor general condition of the patient, and in cases of very early microscopic diagnosis. No operator with large experience ever has reported over 10% of cures by it. We can, however, compare the radical vaginal operation or the para-vaginal operation of Schuchardt and Shauta with the radical abdominal operation of Wertheim. Briefly, this is an operation in which the vaginal wall and labia on the left and all the para-vaginal and para-rectal tissues are split to the sacrum, laying wide open the perineum. By this operation it is possible to remove a generous portion of the vagina and some of the parametrial tissue. It is difficult and bloody; accidental and undetected injuries of the bladder and the rectum and ureters are far more common than in the abdominal operation. The danger of implantation metastasis is greater. The lymph glands cannot be reached. It has not shown as large a percentage of cures as the abdominal operations in the hands of Wertheim and Zweifel; its immediate mortality is almost as high. Schauta's mortality, 10.7%, as compared with Wertheim's mortality in his last 250 cases, 12%, and Staude in a recent series of cases reported a mortality of 20%. Convalescence is complicated usually by tedious suppuration and sinus formation. The vaginal operation is harder to learn and more difficult to perform. In the abdominal operation, one can freely dissect the ureters, detect injuries, repair them, remove parametrium much more widely, palpate and remove enlarged lymph nodes. Our list of cases does not include any para-vaginal operations. I have yet to do it myself on the living.

Abdominal hysterectomies for cancer of the fundus. — Total number, 21; immediate mortality, 4, or 19%. Of the 17 cases that survived the operation, 16 have been traced. Five cases are alive and without recurrence five to eight years after operation, a percentage of cures of 31.2%.

Abdominal hysterectomies for cancer of the cervix. — Total number, 71. Squamous cell, 70, adenocarcinoma, 1.

In 49 cases, an ordinary hysterectomy, with no attempt at dissection of the ureters or pelvis, was the operation; in 22 cases a more or less radical dissection was done. In a few of the cases there was a preliminary vaginal operation freeing the bladder and rectum from below. Of these 49 cases in which no attempt was made to widely remove the parametrium, 17 died as a direct result of the operation, an immediate mortality of 34.6%. Cases in which the bladder, rectum and ureter were injured were far more common in this set in the cases in which an attempt at thorough dissection was made.

Of the 32 cases which survived the operation, 29 have been traced, 4 are alive without recurrence for more than five years, a percentage of cures of 13.7%.

In the 22 more or less radical hysterectomies there were 5 deaths, an immediate mortality of 22.7%. All of the 17 surviving cases were traced. Five are alive and well and free from recurrence from five to eleven years (4 my cases), a percentage of cures of 29.4%. One case, a successfully completed Werder operation, lived over eleven years and now has probable recurrence in the pelvic bones.

The cause of death in the abdominal hysterectomies was in the majority of cases septic peritonitis; shock was the next most frequent cause. Septic peritonitis will always be the great danger in this operation because of the risk of infection from the diseased cervix and vagina. Of Wertheim's 93 deaths out of 500 operations, 39 died of peritonitis.

Certain features are worthy of comment. Simple vaginal hysterectomy was the safest in

the hands of a large number of operators. Simple abdominal hysterectomy, with its immediate mortality of 34%, proved to be a very dangerous method in the hands of various surgeons, and its end results are not good enough to justify its use as an operation having any advantage over the simple hysterectomy. An abdominal operation which makes no attempt to dissect the ureters and remove the parametrium, to say nothing of the glands, cannot be advocated as a safe and reasonable operation for cancer of the cervix. Such an operation exposes the patient to an increasing danger from shock, hemorrhage and septic peritonitis without making any more effective removal of the disease and its lymphatics.

The 22 radical operations show a much lower mortality, over 10% less than the simple hysterectomies, and a larger percentage of ultimate cures. This can probably be explained by the fact that the operations were attempted by only two or three men with special interest and knowledge, whereas the majority of the simple hysterectomies were done by many surgeons, most of whom, in all probability, had made no special study of the technic of the subject, or who chose the abdominal route as a method with which they were more familiar.

In the beginning of this paper it was remarked that our results must be compared with those of the best workmen anywhere, but allow me to emphasize again that the work of a large number of men operating intermittently with relatively small material and experience cannot be compared fairly with the work of one highly-trained man working continuously with abundant material.

Essential features of the operation. — The most important features of the operation in my experience are as follows:

(*a*) The preliminary preparation of the patient and anesthesia.

(*b*) Prevention of peritoneal infection from the growth itself.

(*c*) Dissection of the ureters.

(*d*) Removal of the glands.

(*e*) Hemostasis.

(*f*) Drainage.

(*g*) After treatment.

As in every case in which a difficult abdominal operation is planned, the patient should be studied most carefully and special attention paid to the state of the heart and the functional power of the kidneys, and extraordinary pains should be taken to thoroughly empty the intestinal tract. The presence of distended coils of intestine will interfere seriously with the field of work, more so than in any other pelvic operation. Thorough catharsis by castor oil and enemata with liquid diet for forty-eight hours are necessary.

Anesthesia and time. — Every effort should be made to shorten the period of anesthesia. The operation, with its preliminary stage of vaginal disinfection, in skilled hands will require from one and three-quarters to three hours and more, depending upon the difficulties and complications in each case. Difficult cases, especially those in which the glands are removed and the ureters or bladder resected, must always take three hours or more from the time the anesthetic is started until the patient is back in bed. My quickest case, a particularly favorable subject with a thin abdominal wall, where I did not remove the glands nor resect, required one hour and thirty-five minutes. My difficult cases have taken from two and a half hours to three and a half hours. Obviously, in operations of such magnitude and length every pains must be taken with the anesthetic. Ether in expert hands is undoubtedly the only anesthetic to be considered. In order to shorten the period of anesthesia, Wertheim thinks it advisable to do the vaginal curetting and cauterizing before the ether is started. He says that this can be done with practically no pain if the vaginal walls are properly protected. I cannot agree with him. The necessary relaxation for quick work will not be obtained, and surely the nervous strain upon the patient because of the manipulation and the mental association can rapidly induce moderate shock before the actual operation has begun. In 33 cases Wertheim used spinal anesthesia with stovain or tropococaine, because of cardiac conditions. In general, the length of the operation contra-indicates the use of lumbar anesthesia, and inasmuch as the successful performance of the operation demands the Trendelenberg position, in which position we know that spinal anesthesia is frequently very dangerous, I should fear to use it. I believe, however, in this form of anesthesia in certain cases of simple vaginal hysterectomy.

Prevention of septic infection from the growth itself. — As has been stated above, the commonest cause of death from this operation in the hands of all operators has been septic peritonitis. I have found in my experience that cases which escape a septic peritonitis often have a foul infection of the abdominal wound and retroperitoneal space. The source of infection is the ulcerating, infiltrated cervical growth. An operation in which the necessity of cutting across the vagina and removing the uterus through an abdominal incision could be avoided, thus doing away with the manipulating of infected areas intra-abdominally, would be the ideal one. Werder, of Pittsburg, devised such an operation by which after he has finished the pelvic dissection and freed the vagina far down from the bladder and rectum, he pulls and pushes the uterus out through the vulva, amputating the vagina from below, the final stage of the operation being done with the patient in the lithotomy position. This method may be termed an invagination from above. Wertheim abandoned this method because of the increased technical difficulties of the operation, because of the serious bleeding from the para-vaginal tissue, and because of the extra time consumed in changing the position of the patient. Dr. C. A. Porter completed this operation in two cases; one case died of cancer six months later, one lived eleven years and then developed late recurrence. I have attempted this

method but abandoned it because of the above reasons. I hope, however, that some of the difficulty with the hemorrhage all through the radical operation may be overcome by the use of Crile clamps or ligatures on the internal iliac arteries. I believe that in selected cases with little fat in the abdomen and pelvis, if proper hemostasis can be secured, the Werder method is the way to finish the operation. At present its immediate mortality from shock and hemorrhage will always be greater, though the danger of septic peritonitis will be less.

How to avoid infection without Werder's method. First, by a thorough destruction of the growth and disinfection by use of the curette and cautery and strong antiseptic solution in the preliminary vaginal stage. I have come to believe that this should be done immediately before the abdominal operation at the same anesthetization; it is my experience that curettage and cauterization a week before creates a much more foul and virulent septic condition because of the tremendous migration of bacteria into the freshly infiltrated areas. After the cervical growth has been destroyed, the vagina should be wiped out with a saturated solution of permanganate of potash and oxalic acid and corrosive sublimate 1-1000. Second, by using the right-angled clamps as advised by Wertheim. I have used the right-angled clamps with great satisfaction. When the dissection of the pelvis is completed and the vagina freed from the bladder and rectum, a specially constructed right-angled metal clamp is applied across the vaginal tube well below the cervix, after which the vagina is amputated with the cautery below the clamp. It is true that in a certain small percentage of cases the clamp cannot be used, especially in cases of adiposity or where there is marked lateral infiltration, either inflammatory or malignant.

Dissection of ureters. — Free exposure of ureters and separating them from the parametrial tissues is *all important*. Without this the operation cannot be done thoroughly or safely. This must be done with as little traumatism of the ureter as possible, for necrosis and fistulæ can occur from very slight interference with the ureteral blood supply. In Wertheim's cases ureteral fistulæ occurred 32 times; in 12 it occurred where separation had been easy and there was no suspicion of injury; undoubtedly in some cases ureteral necrosis will occur in spite of all precautions.

Many operators in this country strongly advise the use of ureteral bougies introduced before operation as valuable aids in locating and dissecting the ureters, the method of Howard Kelly. I have used the bougies, but have abandoned them for the following reasons. Cystoscopy and inserting the bougies takes time, and we have already seen how necessary it is to save every minute, whereas with the bougies inserted we can detect the ureters easily; on the other hand, in my opinion, the bougies are distinctly harmful and a hindrance in dissection because they act as rigid splints and prevent the displacing of the ureters in any direction, exerting, moreover, a counter resistance and pressure and so contributing to necrosis. Without them I have found little difficulty in isolating the ureters except in very fat subjects. I have adopted a method of lifting the ureters out of the way by using tape retractors protecting the ureteral blood supply by rolling over a fold of peritoneum: that is to say, as the ureter lies exposed on the inner and posterior peritoneal flap of the broad ligament, the infundibulo-pelvic ligament having been cut across and the peritoneum divided as far up as and above the bifurcation of the iliac arteries, this posterior peritoneal layer is incised above and below the ureter parallel with it about half an inch away from it and through these slits tapes are passed surrounding the ureter. I have found that with this method I could make fairly strong traction on the ureters without damaging them. Cases in which I have used them have had no necrosis. By this method blunt dissection of the uterine arteries is facilitated, and it is also of great value when a tedious dissection of the vesical end of the ureter or bladder is necessary. I will shortly publish a brief technial paper with illustrations showing this method, which I think is an original and valuable one.

Incision. — The median incision should go well down to the top of the symphysis pubis and in some cases may extend above the umbilicus. I have found that cutting across the aponeurotic sheath over the recti muscles, taking pains not to divide the muscle fibres or nerves, will give considerable more freedom in retraction. This is an adaptation of the method suggested by Gibson in operations for low ureteral stone.

Removal of the regional lymph glands. — Inasmuch as it is impossible to remove all the glands, Wertheim's decision that the glands should be removed only when palpably enlarged is now accepted by most of the students of the subject. Enlarged glands do not always mean cancer, but, if cancerous, the prognosis is bad, yet not necessarily hopeless. In Wertheim's first 250 cases, 62, in which the glands were removed, showed carcinoma; 20 of these cases died as a result of the operation, and of the remaining 41, 5 were cured. I have removed the regional lymph glands in 5 of my cases; in 4 the iliac glands, although markedly enlarged, were not carcinomatous, — these cases are alive and well over five years; in the other the glands were cancerous; this case was done six months ago and is still living and well.

I want to emphasize the importance of a preliminary survey of the glandular condition as urged by J. G. Clark, and also to emphasize the fact that to do this properly it is necessary to split the peritoneum and lay the great vessels free, for in no other way can one determine accurately by palpation whether the glands are enlarged or not. If numerous enlarged nodes are felt, especially in the sacral chain, a radical operation is inadvisable and the operator should content himself with a simple hysterectomy; but if the iliac and obturator groups are moder-

ately involved, the glands should be removed as the last stage of the radical operation. Theoretically they should be removed at the first of the operation or in continuity with the parametrium, but it is practically impossible in this operation to establish a lymphatic block, as in dissection of the breast and axilla or neck.

In most cases the glands are removed easily by blunt dissection. In cases where they are adherent to the iliac veins or surrounding the obturator nerves, they will be removed with difficulty and risk. Injuries of the iliac veins are especially dangerous, leading to late hemorrhage and septic thrombosis.

Dissection of the glands adds to the immediate mortality because of the added time necessary and because of the danger of hemorrhage and injury to the large veins.

Hemostasis. — Hemorrhage, especially venous bleeding deep down, may be in some cases a serious matter. In all stages of the operation hemostasis is important, especially so in separating the vagina and removing the parametrium close to the pelvic wall. It is problematical how much permanent ligation of the internal iliac arteries or the use of Crile clamps will interfere with pelvic nutrition, especially how it will influence post-operative cystitis, although, as we have seen, Ryall has had no bad results from this in those cases in which it was done for palliative reasons. Whether, in the cases where large dissection had been made, shutting off the iliacs permanently or temporarily would increase the chance of sepsis and necrotic sloughing and serious vesical complications is uncertain. This question I am studying.

Drainage. — In the majority of cases it is necessary to drain only through the vagina with strips of iodoform gauze, peritoneal surfaces being sutured over so as to form pelvic floor above the gauze. If there is not enough of the peritoneum left, the sigmoid flexure can be stitched across with advantage. The gauze strips should be started on the fifth day and all removed on the ninth or tenth day. In a few cases where there is reason to suspect unusual infection of the peritoneum, or where the bowel has been opened or injured, abdominal drainage with cigarette drains will be needed in addition. In only one of my cases have I thought it necessary to use abdominal as well as vaginal drainage.

Time will permit me to say only a few words in regard to after treatment. It is of the greatest importance to use a moderately elevated posture and continuous salt solution by rectum after the method of Murphy in the treatment of septic appendicitis and peritonitis. The extreme erect position, however, should be avoided; lifting the head of the bed about eighteen inches is sufficient. Use of an inlying catheter from the start with urotropin and irrigations are advisable as routine measures in each case to alleviate and cut short the usual cystitis. There is much left to be said about many sides of this subject technically and pathologically. Time will not permit further discussion to-night. I will conclude with a brief statement of my own cases and results.

Personal experience and results. — My material has been small, but my results encourage me to go on with this special work with renewed energy. Since 1901 I have done the radical operation 12 times, with 2 deaths from the operation, and immediate mortality of 16.6%.

My first 6 cases were done previous to 1909. In these there was no immediate mortality, 4 cases are cured.

Brief reports of these 6 cases follow. All of them were operated on at the Massachusetts General Hospital.

Elizabeth C. West Surgical. Vol. 369, page 120, Jan. 4, 1901. Age thirty-five. Married. Well until six months previous. Has had no children and no miscarriages. For six months had had pain and irregular flowing. Had been curetted by a doctor for these symptoms. For three weeks constant foul discharge. Has lost 18 lb. in weight. Erosion on the cervix about the size of a half dollar, indurated edges. Marked thickening and induration in the left broad ligament.

Radical operation on Jan. 9, 1910. The iliac glands on both sides were enlarged and removed. This patient made an uneventful recovery except for some slight cystitis.

Pathological report: squamous cell carcinoma of the cervix. Glands not malignant.

She was operated on in 1906 and in 1908 for ventral hernia.

This case is alive and well at the present time, eleven years and four months after operation.

Deborah M. No. 128406. South Surgical. Vol. 59, page 25, Aug. 6, 1902. Age thirty-seven. Widow. Two children, last one fourteen years previous; two miscarriages, last one fourteen months before entrance. Symptoms have been continued flowing for two months, with some pain. Both the anterior and posterior lips of the cervix showed cauliflower growth which apparently had not extended on to the vagina. The uterus was movable. No thickening in the broad ligaments.

Radical operation, Aug. 9, 1902. One gland the size of a lima bean was removed from between the left iliac vessels. Except for a slight wound infection sixteen days after the operation, convalescence was uneventful. Discharged well on the 9th of September.

Pathological report: Squamous cell carcinoma of the cervix. The enlarged gland showed no cancer, but hyperplastic lymph-adenoid tissue.

This patient lived thirteen months and died under my care of recurrence in the pelvis obstructing both ureters.

Madeline V. No. 134507. South Surgical. Vol. 83, page 287, Oct. 16, 1903. Age forty-eight. Widow. Symptoms for five months irregular, excessive flowing with pain. Large cervix with extensive cauliflower growth. Uterus movable. No thickening in the broad ligaments.

Radical operation Oct. 20, 1903. Moderate shock. Ten days after operation slight leakage of urine by vagina, which soon ceased. Patient discharged well Nov. 27, 1903. No glands were removed at this operation.

Pathological report: Squamous cell carcinoma of the cervix.

This patient is alive and well at the present time, eight years and six months after operation.

Jane S. No. 140882. South Surgical. Vol. 107, page 143, Jan. 14, 1905. Age sixty. Widow. Eleven children, last one at the age of forty-four. Menopause at forty-seven. For two or three years has noticed bloody discharge, increasing in frequency and amount. Some pain. Loss of weight and strength. Cervix hard and indurated with several deep ulcerations. Uterus movable. Broad ligaments not thickened.

Radical operation Jan. 18, 1905. One enlarged gland in the left iliac region was removed. Convalescence uneventful except for severe cystitis needing constant drainage and irrigation. Discharged well Nov. 11, 1905.

Pathological report: Squamous cell cancer of the cervix. Gland non-malignant.

This patient is alive and well at the present time, seven years and four months after operation.

Ethel H. No. 150169. South Surgical. Vol. 137, page 23, Nov. 6, 1906. Age twenty-seven. Married. One child eight years previous. For five months has had flowing accompanied by weakness. Has been curetted within two months by a doctor. Badly eroded cervix with free hemorrhage on examination. Uterus movable. Broad ligaments not thickened.

Radical operation Nov. 19. The bladder was torn in the operation and sutured with two layers of catgut. The iliac glands on the left were enlarged and removed. Convalescence uneventful except for slight cystitis. Left hospital Dec. 12, well.

Pathological report: Squamous cell carcinoma of the cervix. Glands non-malignant.

This patient is alive and well at the present time, five years and six months after operation.

Rose S. East Surgical. Vol. 620, page 105, No. 159940, Aug. 24, 1908. Age thirty-five. Married. Six children, youngest nineteen months previous. For fourteen months has had almost constant flowing and foul discharge. Some loss of weight and strength. Cervix hard, nodular and excavated. Uterus not freely movable. Induration in both broad ligaments.

Radical operation Sept. 4, 1908. Considerable shock, marked cystitis. Moderate infection of the abdominal wound. Sept. 18, pelvic abscess opened through the vagina; after this recovery was uneventful. Discharged well the 7th of October. No glands were removed.

Pathological report: Squamous cell cancer of the cervix.

This patient is alive and well at the present time, three years and eight months after operation.

The remaining 6 cases have all been operated on during the last year. Two died from the operation, one of peritonitis, one of iliac thrombosis. The other 4 are alive and well. Such a percentage of cures is a sufficient answer to those who deny the possibilities of the radical abdominal operation.

STATISTICS OF 309 CASES AT THE MASSACHUSETTS GENERAL HOSPITAL.

Total number of cases,		309
Inoperable,	52	
Palliative operations,	148	
Refused operation,	3	
Vaginal hysterectomies,	114	
For cancer cervix,	11	
For cancer fundus,	3	
Abdominal hysterectomies,	92	
For cancer fundus,	21	
For cancer cervix,	71	
Operability,		35.2%
Two hundred cases came too late.		

VAGINAL HYSTERECTOMIES.

Total number,	14
Immediate mortality,	None
For cancer fundus,	3
No cures.	
For cancer cervix,	11
Traced,	8
Cured,	2, or 25%

ABDOMINAL HYSTERECTOMIES FOR CANCER FUNDUS.

Total number,	21
Immediate mortality,	4, or 19%
Of the 17 surviving:	
Traced,	16
Cured,	5, or 31.2%

ABDOMINAL HYSTERECTOMIES FOR CANCER CERVIX. NOT RADICAL.

Total number,	49
Immediate mortality,	17, or 34.6%
Of the 32 surviving:	
Traced,	29
Cured,	4, or 13.7%

ABDOMINAL HYSTERECTOMIES FOR CANCER CERVIX. RADICAL.

Total number	22
Immediate mortality,	5, or 22.7%
Surviving 17 cases:	
Traced,	17
Cured,	5, or 29.4%

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SURGICAL TREATMENT OF CANCER OF THE UTERUS.*

BY C. A. PORTER, M.D., BOSTON.

THE number of cases upon which I have operated personally is far too few to draw any statistical figures of value. I have operated for cancer of the uterus at the Massachusetts General Hospital 17 times; at the New England Baptist Hospital and in private, 10 more. Of the 17 cases at the Massachusetts General Hospital, 6 were vaginal hysterectomies in 1900 without a death. One is alive and free from recurrence; one lived two years; one died of bronchopneumonia in thirteen months, without evidence of recurrence; 3 cannot be traced. Of the remaining cases, 3 ended as simply abdominal panhysterectomies. In one case, in 1900, the

* Read in discussion of Dr. Farrar Cobb's paper, p. 37, at the annual meeting of the Suffolk District Medical Society, April 27, 1912.

disease appeared to be confined to the uterus and the patient is still alive and well. In the other two, the parametrium with glands or bladder were so extensively involved that a complete dissection was inadvisable. One died on the sixth day of hemiplegia and consolidation of the lungs, but no evidence of sepsis in the wound; the second died in five days from hemorrhage, shock and probably sepsis, although the autopsy showed no pathological lesion to cause death. In 8 cases, a complete radical operation was done, either by Werder's method or by removal of the cervix and upper portion of vagina through the abdominal wound. Of these 8, 2 died in the hospital: the first in thirty-six hours of shock and hemorrhage, really not a case for radical operation; the second on the fifth day of pneumonia with chills and finally collapse after a hemorrhage from the rectum. In this case, malignant glands were found about the common iliac vessels; there was severe hemorrhage from the internal iliac artery, and a portion of the bladder was resected; another case in which, at the present time, I should not attempt operation. Of the remaining 6 cases, one is alive and well twelve years after operation; another was alive, Nov. 22, 1911, ten years after operation, with a recent recurrence in the left iliac bone, she having remained perfectly well for nine years; another case lived six months; another died in two years with recurrence; another in sixteen months; another in twenty-two months. My immediate mortality, then, in the radical operation, was 25%. Two of the cases survived operation, although the disease had progressed so far that it was obvious that recurrence was inevitable. Unless the disease offers a reasonable prospect of cure, I do not believe that radical operations should be attempted, and with a proper selection of cases the mortality should not exceed 10% or 12%. In my 27 cases, the bladder was opened five times, — four times unintentionally in an endeavor to go wide of the disease; three times in dissecting the uterus from the bladder abdominally; in one case, while removing an adherent cervix from below. The bladder was sutured with two layers of catgut and continuous drainage; no subsequent leakage. In the fifth, a private case, a piece of bladder an inch in diameter was deliberately removed because it was involved in the growth. After a year, there was no evidence of recurrence, and the opening was successfully closed by suturing a piece of vaginal wall to the bladder. The patient did not die of recurrence until two years later.

I have personally never used the actual cautery, in spite of the good results reported, for cure of cervical cancer, reserving it for purely palliative operations. In two cases of adenocarcinoma of the fundus and in one case of a small growth on the anterior lip of the cervix, vaginal hysterectomy was chosen. In the other cases, the operation was done on account of the excessive fatness of the individual, and the probably poor prognosis as to recurrence. In the very obese, the radical operation is dangerous, extremely difficult, and if the disease has gone beyond the uterus, it is unlikely that any permanent benefit can be accomplished by an abdominal operation. Questions of doubt must arise, of course, whether patients should be subjected to this increased risk in order to properly explore the pelvic condition. As in other malignant disease, the relative age of the patient may determine the operation. It is justifiable in a woman of thirty or forty to run increased risk, which would not be proper in a woman of sixty-five or seventy.

I have never done the complete operation in less than two hours; once, I was hard at work for three hours and a quarter. I have twice tied the internal iliac artery; once, one internal iliac vein; once, both internal iliac veins. I have never injured nor had necrosis of the ureter, although in all radical operations it was freely exposed from the brim of the pelvis to the bladder. I have never used a bougie. In one case, it was impossible to free the right ureter from a surrounding malignant mass. In another, I was able to confirm Wertheim's observation that a line of cleavage about the lower end of the ureter exists, and that the tube could be dissected with care from a surrounding mass of cancerous tissue. In this case of irremovable cancer, I dissected out the right ureter, the patient having a bilateral hydronephrosis, but symptoms only on the right. A piece of omentum was put about the ureter, which was pushed away from the cancer. There was complete relief from pain for several months, the patient previously having required one-quarter grain of morphia several times a day. In the early cases, 1900 to 1902, the operation was begun in the lithotomy position, the cervix having been cauterized and then freed from below. Later, I decided that this was bad technic, because in order to avoid the ureters, one was tempted to hug the uterus. I believe the abdominal operation to be more radical, as the ureters are readily found and easily avoided. Now that Wertheim and others have clearly defined the routine, radical operation for uterine cancer, it seems to me that results and mortality will depend in a great measure upon the sound judgment of the operator, when the abdomen has been opened and a thorough examination of existing conditions has been made. Not all enlarged glands in the pelvis are necessarily cancerous, as shown by one of my cases, which seemed at first sight inoperable. I removed a number of enlarged glands from both sides of the pelvis, thinking them undoubtedly malignant, but Dr. Whitney reported no evidence of malignancy; the glands were tuberculous. Induration in the broad ligaments may be of inflammatory origin, though feeling like malignant disease.

I shall not again attempt to perform superhuman operations for cancer, and believe that where obvious malignant disease must be left behind, the patients will be better without operation; in other words, I should limit the radical operation to those cases in which the surgeon believes he can remove the cancer, whether it be

in the uterus, glands or parametrium. Only in very occasional cases should bladder resections be performed. I always make a long incision at least two inches above the umbilicus, in order that all the intestines may be displaced above the sacral promontory. I incise the peritoneum over the ovarian vessels, and always tie them subperitoneally, for I have several times seen ligatures which included this membrane slip off, from the prolonged use of retractors. The ureter is found where it passes over the common iliac vessels, and is traced downward to the bladder. It is almost always in intermittent vermicular motion, and is readily recognized. I endeavor to clean the sides of the pelvis with a gauze sponge or a small gauze swab on a hemostatic forcep, working downward and backward from the external iliac vessels. The uterine arteries should be tied at their origin from the internal iliac. Every effort should be made, by careful, slow dissection, to avoid injury to the great veins, which should be tied before they are torn or cut. Twice I have had serious, almost uncontrollable hemorrhage from the internal iliac veins, and twice I have had to leave hemostatic forceps on venous trunks. I lay special stress on careful dissection of the lateral, vaginal cul-de-sacs, which to my mind is the most difficult part of the operation. As in all malignant disease, the operator must bear in mind that the good accomplished is measured by the amount of gland-bearing tissue actually removed, not by the area which is dissected open in the operation. One is often surprised by the comparison of the large extent of the wound with the small amount of tissue actually excised. Long forceps, long retractors and long scissors are indispensable for work at the bottom of a deep pelvis. When possible, the Werder technic is to be preferred. The peritoneum is closed without drainage, and with the patient in the lithotomy position, the cervix is pulled out and divided with a broad cuff of vagina by the actual cautery. Loose packing completes the operation. With careful walling-off technic, the uterus and vagina may be removed from above, but there is always increased risk of sepsis and cancer implantation, particularly with a large, cauliflower growth of the cervix. If such exists, preliminary destruction with the actual cautery is advisable. The radical operation for uterine cancer is certainly a formidable one. I believe in properly selected cases, and in the hands of experienced operators it offers sufficient probability of permanent cure or delayed recurrence to make it worth the risk. Improved results in the future will depend less upon the surgeon than upon the general practitioner. One of my patients was told by her physician in June, 1900, that "she had cancer of the womb, but advised doing nothing about it until cooler weather." She did not come to operation until November. Comment on such advice is unnecessary.

ADVANTAGES OF ABDOMINAL HYSTERECTOMY.*

BY F. B. LUND, M.D., BOSTON.

In our student days we used to see vaginal hysterectomy for cancer of the cervix, and I well remember some of the operations in which the cervix was grasped and the uterus brought down, the growth itself being caught by the double hooks and frequently great pieces of it broken off. The uterus would slip back and it would have to be grasped over again. Then the uterus would be removed and the clamps left on the broad ligaments. During this process of breaking off and pulling and hauling there is no doubt that very possibly opportunity was offered for implantation of cancer by punctures with hooks, and disseminating of the growths with clamps and other instruments.

I have done vaginal hysterectomy for carcinoma of the cervix six times for special reasons, usually obesity, with no deaths, but I am fully persuaded that the abdominal hysterectomy is the operation of choice as enabling one to get the growth out as quickly and in a cleanly manner and to follow it, if necessary, far out into the broad ligaments, dissecting free from the ureters. Vaginal hysterectomy is easy to perform and is attended with practically no shock or mortality and is to my mind adapted to early cases of cancer of the body or of the doubtful cases where we are not sure whether we are dealing with a cancer of the body or hypoplastic endometritis. In such cases the growth is confined to the mucous membrane of the uterus, and grasping the cervix with hooks does not puncture, nor is there danger of disseminating the growth by so doing. Cancer of the cervix is, however, very different from cancer of the body. It tends to proceed outward into the broad ligaments along the uterine arteries with great rapidity and sometimes even with a perfectly movable uterus, and in case of recent appearance I have been surprised to find how far laterally the growth has extended. It has been found necessary to dissect free from the ureters even in cases which showed a movable uterus on vaginal examination. In regard to implantation, a recent experience has convinced me of the danger of any method of operating for cancer of the cervix by which one may put hooks or clamps into the growth or cut across it.

I went to a neighboring town to perform an operation for cystocele. I found that the uterus was prolapsed and there was an ulcer of the cervix which was not larger than a twenty-five-cent piece but which looked malignant. Instead of doing as I had intended, an interposition of the uterus for a cure of cystocele, I performed a vaginal hysterectomy, suturing the round and broad ligaments to the base of the bladder. The pathological report was carcinoma. During the operation there was some hemorrhage from veins which had escaped from the clamps in the right broad ligament, and some time was devoted

* Read in discussion of Dr. Farrar Cobb's paper, p. 37, at the annual meeting of the Suffolk District Medical Society, April 27, 1912.

to stopping this hemorrhage, and very likely the clamps which had previously touched the cancer were used for that purpose. Four months later there was a recurrence in the right broad ligament, which was very painful and tender and about the size of an English walnut. I attacked it through the abdomen, removed it and tore across it in doing so, and I was never sure that I got the whole of it out. Prompt recurrence occurred in all of my stitch-holes and along the course of the abdominal wound. The patient succumbed within a year. This experience convinces me of the danger of implanting cancer and of the necessity of so operating as not to handle the growth or touch it with instruments which are afterward to be used on healthy tissues. I think this is very important in cancer of the breast and of the stomach and, in fact, of any part of the body. My procedure now, in cancer of the cervix, is to thoroughly cauterize the growth through the vagina, then perform an abdominal hysterectomy, dissecting wide into the broad ligaments and finding the ureters, and if there is any lateral extension of the growth it is apt to be along the uterine artery which comes up directly across the ureters. They sometimes lie surprisingly near to the cervix. Everything depends upon having a broad view and plenty of room. The vagina should be entered from behind, care being taken not to touch or handle the cervix. I have never yet found any palpable enlargement of the glands in cases of cancer of the uterus except in cases where the extension was so great that I deemed a hysterectomy inadvisable. In one case in which the ureters were involved I had to resect one inch of the right ureter and implant the lower end into the bladder, and after this procedure the patient made an excellent recovery without a urinary fistula and was in good health for two years before a recurrence took place. Among my early cases, I dissected the ureters in one other, but in that case recurrence took place. In two other recent cases the ureters have been exposed and dissected free.

One unusual experience I had in carcinoma of the uterus was to remove, through the abdomen, a cancer in the vault of the vagina left after a vaginal hysterectomy by another surgeon, for carcinoma. This growth was sufficiently local to admit of removal and freedom from recurrence for one year.

Cancers of the body have been few in my experience, and the results with regard to non-recurrence have been excellent. I must confess to having removed both by vagina and abdomen a number of uteri in which the examination of the curettings left one in some doubt whether to deal with hyperplastic endometritis or cancer of the body, but in each, examination of the uteri subsequent to removal showed that it was hyperplastic endometritis. I have never regretted this operation, for there has been no mortality and the patients have been relieved from exhausting hemorrhages and the apprehension of cancer, the seriousness of which in elderly women we all realize.

One experience from which I have recently learned was that of a patient who had a small ulcerated cervix which I did not think amounted to anything and a slight uterine discharge but without hemorrhage as my notes showed. Her symptoms were intestinal, and I removed a chronic adherent appendix. I was informed a short time ago that the patient had a cancer of the cervix and was about to be operated upon by another surgeon. This experience, coupled with the one related above and the patient upon whom I expected to operate for cystocele, do not tend to make me let alone ulcerated cervices or lacerated or cystic cervices in patients in the cancer period of life. The cystic degeneration of the cervix is a malignant-looking affair attended with much discharge and bleeding. Such cervices should be at least amputated high above the seat of the cystic disease and sent to a pathologist, and while you are amputating them it does no harm, to my mind, to take out the entire uterus if there is any possible doubt at the time of malignancy.

In the complete operation for cancer of the cervix where it is extended so far laterally as to necessitate dissecting out or possible resection of the ureters, it seems to me that recurrence will be very likely to take place no matter how radical the operation may be, but nevertheless one can never tell how long immunity may be secured. Even in cases which appear quite serious, therefore, the more thorough operation that we can do, without endangering the life of our patient, the better.

I have not found abdominal hysterectomy carefully performed at all dangerous. In twenty-one total abdominal hysterectomies for cancer, my only mortality has been in a case in which the technical difficulties were great on account of the depth and narrowness of the pelvis and the extent of the growth, and in this case I think I wounded the ureter without finding it out. A little more vomiting and malaise follows the abdominal hysterectomy for cancer than the ordinary vaginal hysterectomy, but the advantages on the side of thoroughness are so much greater, and the opportunities for complete removal of the growth are so much better, that the former should almost always be preferred and should be done under conditions and with assistants who are used to the operator and will in every way facilitate a thorough operation.

The excellent presentation by Dr. Cobb should encourage us to further and more enthusiastic efforts in the direction of more thorough work, and I, myself, believe that our work will be crowned by better results in the future than in the past.

HOPEFUL ASPECTS OF CANCER OF THE UTERUS.*

BY W. P. GRAVES, M.D., BOSTON.

WE have always heard so much of the dreadfulness and hopelessness of cancer of the uterus that we are apt to overlook certain brighter and

* Read in discussion of Dr. Farrar Cobb's paper, p. 37, at the annual meeting of the Suffolk District Medical Society, April 27, 1912.

more cheerful phases of this disease, a thorough appreciation of which would perhaps lead the profession to a more intelligent and successful treatment. It is to some of these more hopeful aspects of the case that I wish to call your attention in my discussion of Dr. Cobb's most instructive and interesting paper.

The term "uterine cancer" is an unfortunate one. It confuses, first, the fact that the so-called uterus comprises two distinct and independent organs, namely, the fundus and the cervix, which are totally different in their histological structure and in their physiological function, and in the character of the pathological processes to which they are subject, whether infective or neoplastic.

The term "uterine cancer," consequently, confuses the fact that cancer of the fundus and cancer of the cervix are as widely separated from each other histologically, and clinically, as it is possible for two epithelial tumors having the common character of malignancy to be.

Cancer of the body is an adenocarcinoma or glandular tumor arising from the endometrium of the body of the uterus, while cancer of the cervix, excepting in rare instances, is a squamous-cell carcinoma or epithelioma arising from the squamous epithelium of the vaginal portion of the cervix. The statement that cancer of the body is a neoplastic tumor of the endometrium throws the first ray of cheerfulness which we are looking for in our optimistic view of the situation. The fact that this tumor is an affection of the endometrium is *prima facie* evidence of its comparative benignity. The endometrium, long maligned and maltreated, has, in the light of more recent research, proved to be one of the most innocuous tissues of the entire body, both as regards infections and neoplasms. It is rarely infected excepting during the puerperium, and the term "endometritis," formerly associated as an etiological factor with all kinds of pelvic symptoms, is now becoming more and more rare in gynecological parlance. Even the hypertrophic endometrium, so carefully removed in most gynecological operations, and long regarded as pathological, is now known to be usually only a phase of the normal menstrual congestion. The endometrium is a self-protected soil which nature has provided for the nurture and growth of the fertilized ovum, and if it were subject to all the diseases formerly ascribed to it, the human race would long ago have become extinct.

In the field of neoplasms the endometrium shows as little tendency to be vicious as it does in infections. The only tumor growths to which it is ordinarily subject are the adenomyomata and the adenocarcinomata.

Adenocarcinoma of the body, which concerns us chiefly in the subject of the paper, although the endometrium's greatest pathological offense, nevertheless is a far from terrifying disease. It is slow in its growth and has little tendency to metastasize, and when metastasis does take place it is usually in the ovaries first, an extremely favorable site for complete removal.

Adenocarcinoma of the body gives early warning of its presence by bleeding, and as its occurrence is usually rather late in life, frequently after the menopause, the warning is more apt to be heeded by the patient, who thus seeks early medical advice. As the cancer progresses only by extension in the wall of the uterus, and does not invade the parametrium until the very late stages, and as metastasis if present at all is usually in the ovaries, the possibilities of complete removal by hysterectomy are extremely favorable, while the operation is as a rule free from complications and easy to perform. Hence the figures for non-recurrence should be high, at least 90%, while the primary surgical mortality should be practically nil.

In contrast to cancer of the body, which we may characterize as one of the most benign of the so-called malignant tumors of the human body, cancer of the cervix may rightly be termed of all tumors one of the most deadly and most ghastly. It kills by slow torture, causing in later stages months of agonizing pain and producing a discharge of such a foul and nauseating character as to repel proper medical assistance. Nurses decline to care for these cases, while many public hospitals close their wards to them as patients. Let us see if there is not some gleam of hope to brighten this distressing picture.

In 98% of cases cancer of the cervix develops in lacerated and eroded cervices which have not been repaired. In the 2% of cases where it develops in virgins or nulliparous women, it probably appears only in those cases where there has been a preceding irritated condition, the so-called primary erosion of the cervix. There is, therefore, in the case of cancer of the cervix, a definite, tangible, etiological factor such as does not exist equally in any other malignant tumor of the body, namely, trauma and irritation. With this tangible etiological factor before our eyes we have a definite means of prophylaxis. An injured and eroded cervix which has been properly amputated or skillfully repaired is in a large measure immune from a future cancerous degeneration, and we have, therefore, in the plastic operations on lacerated, eroded and ulcerated cervices a means of prophylaxis against cancer which no other tissue of the body enjoys.

Cancer of the cervix begins superficially as a rule, and even in the early stages gives a characteristic appearance and feeling and is in a location where it can easily be removed for microscopical examination. Hence diagnosis is not difficult. There is remarkably little tendency to metastasize further than the parametrial tissue, many very advanced cases being astonishingly free from involvement of the regional lymph glands. Even the extension into the parametrium is not particularly early. The disease is, therefore, exceptionally favorable for complete extirpation by early operation. This great advantage is, however, offset by the insidious treachery by which the disease progresses in its early stages. Its first symptom, leucorrhea, usually gives the patient little concern, while the second symptom,

bleeding, is too often disregarded both by the patient and her doctor, who frequently consider it a symptom of the change of life. The third and final symptom is pain, which, as the cervix is a peculiarly insensitive organ, does not appear until there is an invasion of the pelvic tissues or of the regional lymph glands, when the disease is no longer surgically favorable. This treacherous character which the disease has of progressing to an inoperable stage is the one feature which it is most difficult to combat. If this difficulty could be overcome, the disease would in a large measure be shorn of its terrors.

The statistics of the great European operators, of whom Wertheim is the most conspicuous example, show remarkable success as to non-recurrence in those cases which have been operated on early. It is unquestionably true that the prognosis of cancer of the cervix operated on early by a trained surgeon employing the best technical methods is considerably better as to recurrence than that of an early cancer of the breast operated on under similar circumstances.

There are, therefore, certain most encouraging features which we may contemplate with considerable satisfaction in our efforts to combat the disease of cancer of the cervix. All that we need, therefore, for successful treatment of cancer of the cervix is competent surgery and early diagnosis. Of competent surgeons there is never a dearth. The actual diagnosis of early cases is not difficult, as the characteristic appearance and feel of early cancer are learned with short experience, while the removal of a specimen for a microscopical examination, which gives an absolute diagnosis, is a simple matter. The sole serious difficulty, therefore, which lies in the way of successful treatment is that of making an early examination.

You have heard how the laity should be educated to seek examination early. I submit that it is of the first importance to educate the doctors. I frequently see cases who have sought medical advice in time for surgical operation, but who have been encouraged by their doctors without examination not to worry, and thus the disease has been allowed to progress until it is too late for surgical treatment. The subject of uterine cancer has not been properly taught clinically or therapeutically in most of our medical schools in the past. Gynecological pathology, which from a practical surgical standpoint is one of the most important branches of all surgical pathology, has been almost completely neglected, while few opportunities have been given for the clinical study of uterine cancer cases. In this matter of education in this community, the outlook for the future is also bright. The Collis P. Huntington Hospital, already finished, the proposed Cancer Hospital in connection with the Free Hospital for Women, soon to be realized, and the Brigham Hospital for Incurables will doubtless provide excellent material for the clinical instruction of the medical student in the diagnosis of uterine cancer.

As to the operative technic in the surgery of uterine cancer, including both adenocarcinoma of the body and cancer of the cervix, I am unqualifiedly in favor of the abdominal route, and I employ in my own operations Wertheim's extended method. The detailed technic of this method I have had the privilege of learning from my associate, Dr. H. T. Hutchins, who had the unusual opportunity of assisting Dr. Wertheim at Johns Hopkins Hospital during his visit to this country several years ago.

The essential elements peculiar to the Wertheim operation are:

First, The maneuver by which he isolates the ureter in such a way as to be able to tie off the uterine vessels at a distance from the uterus, thus enabling one to remove a large part of the parametrial tissue.

Second, The method by which he secures and controls the vaginal plexus of veins that pass through the folds of the utero-sacral ligaments, thus enabling one to remove without serious bleeding a large portion of the vagina. The operation, which in uncomplicated cases is a comparatively easy one, is one which, when complicated by pelvic adhesions or extensive disease into the parametrium or by the presence of a large amount of fat, is exceedingly difficult. Under such conditions it often taxes the skill, endurance and nerve of the surgeon to the very utmost.

Wertheim's statistics show how increased experience and skill in his operation have made enormous improvements both in his primary mortality and in his percentage of permanent cures and in the percentage operability of cases.

In comparison with foreign statistics the number of radical operations done in this community is astonishingly small, as shown by the figures given this evening.

My own figures on uterine cancer are as follows: I have operated on 31 cases of cancer of the uterus. Of these, 13 were cases of adenocarcinoma of the body. In this series of 13 cases of adenocarcinoma, there were no deaths, and there are at the present date no recurrences. These operations were spread over a period of between five and six years. I have operated on 18 cases of cancer of the cervix by the extended operation through the abdominal route. Of these 18 cases of cancer of the cervix, there were two deaths resulting from the operation, making a primary mortality of 11%. Both cases died from shock. Besides these two primary deaths, there have been 6 deaths from recurrence. Out of the 18 cases, 10 are well without recurrence. Of these cases 1 was operated on four years ago, 3 were operated on three years ago, 1 was operated on two years ago, 3 were operated on over one year ago, while 2 were operated on within six months.

I have made it a practice to do the radical operation on every case in which there is the slightest possibility of extirpating the uterus and vagina. Many of the cases in my series were far advanced. In the 10 cases which are well without recurrence, most of them were fairly favorable, and I am confident that most of them are per-

manently cured, although no statement as to cure can be made before the five-year limit. There has been no sepsis in any of the 31 cases, excepting a stitch abscess. There were 2 cases of vesico-vaginal fistula, 1 of which healed spontaneously, and 1 case of fecal fistula which has not healed.

I may summarize my remarks as follows.

First, Cancer of the body of the uterus is a surgical disease of comparatively little danger, giving early warning of its presence, easily operable and extremely favorable as to non-recurrence.

Second, Cancer of the cervix, though insidious in onset and dreadful in its later stages if neglected, is entirely operable in its early stages and if operated on early is favorable as to non-recurrence.

Third, There is need of better education of medical students in the pathology and clinical diagnosis of the disease.

Fourth, The surgical treatment of cancer of the uterus is par excellence Wertheim's extended abdominal operation.

ANOTHER CONCEPTION OF ANAPHYLAXIS.*

BY WILFRED M. BARTON, M.D.,

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The prevailing ideas concerning the nature of anaphylaxis are two in number. One of these, which is German in origin, considers that anaphylaxis, or hypersensibility to a foreign proteid, is due to the formation of specific receptors (amboceptors), which act as combining substances between the cells and the foreign proteid.

The other idea, which is derived from the French, regards anaphylaxis as due to the formation in the tissues of special chemical substances, toxogenines, which upon subsequent injection of the foreign proteid, combine with the latter to form a poisonous chemical compound, apotoxine, to which the symptoms of anaphylaxis are due.

To the former idea, it may be briefly objected that its very grotesqueness makes it doubtful, not to mention the fact that the creation of these fanciful bodies is not necessary to explain the phenomena. To the second, the chief objection is that it requires the assumption of the creation by the organism of a distinct chemical substance for every proteid compound which may accidentally get into the body.

Taken together, the German and French conceptions of anaphylaxis both agree in the assumption that specialized compounds are formed, the only difference being that by the former hypothesis, physical or morphological, and by the latter chemical, compounds are supposed to be produced.

But neither of these classic theories adequately accounts for the phenomenon of anaphylaxis, and they neither possess a sufficiently vitalistic quality to guarantee their longevity.

For the following theory offered merely as a working hypothesis, it is claimed merely that it is simple, physiological and that it appears to conform better to the facts as they are known than the mechanical or chemical theories which are in vogue.

According to this conception, anaphylaxis consists in the formation of proteolytic ferments, or enzymes, in certain tissues of the body.

For reasons which will be mentioned, it is assumed that the structures chiefly involved in elaborating these enzymes are the epithelial and perhaps also the endothelial tissues.

These enzymes, or ferments, endow the cells in which they are formed, or the fluids into which they are excreted, with an increased capacity of digesting foreign proteid.

The symptoms of anaphylaxis are partly reflex results of the tremendous physiological aberration which this vicarious digestion induces, and partly the result of the products themselves, acting toxically upon the cells of the central nervous system and other organs.

The first ingestion of a foreign proteid induces the formation of the enzymes. These remain stored up in the cells where they are formed, or circulate in the fluids of the body until the next ingestion of the foreign proteid. This can only occur in small amounts, under conditions in nature, amounts so small in fact that their digestion and destruction is brought about without direct or indirect effects upon the organism as a whole, and particularly its vital parts.

But under the conditions of an anaphylactic experiment, a quantity of the proteid is absorbed sufficient to stimulate the formation of digestive enzymes in all or many of the epithelial structures of the body, and the second injection of proteid supplies a sufficient quantity to be distributed throughout the organism, so that its digestion is undertaken simultaneously by countless epithelial cells, and the symptoms of anaphylaxis are produced.

It is assumed that the epithelial and endothelial structures have acquired this function evolutionally, because from a teleological standpoint they are the natural place for such a reaction of defense to develop, such cells being protective in their function merely and consequently undifferentiated. The leucocytes may, however, also be concerned in it.

It is well known that animals are made ill and sometimes killed by the reaction which we know as anaphylactic shock. An anaphylactized animal is, therefore, said to be sensitized, but it is impossible to conceive that there could have developed in the history of biological evolution any physiological process essentially inimical to the species or individual in which such reaction had arisen. When we look more deeply into the phenomenon of anaphylaxis, we appreciate its truly conservative and protective nature, and that our knowledge of the phenomenon has been brought about by the accidental discovery of a method of provoking its gross exaggeration.

When we compare the phenomenon of anaphylaxis with that of the reaction of the organism

* Read before the Clinical Society of the District of Columbia, May 13, 1912.

to repeated doses of drugs like alcohol, morphine, cocaine, etc., we perceive essential similarities, for in the latter case the tissues have simply developed an increased capacity for destroying a foreign substance. In the case of alcohol, and perhaps with the alkaloids also, it is simply a case of increased capacity for oxidation, and as we know that the cellular oxidations are carried on by means of ferments, it probably means an increase in the quantity or power of these oxidases. The gross phenomena of anaphylaxis are, however, not observed, because the products of their oxidation are not toxic. The skeletal muscles and parenchyma of organs take part in this process because of its innocuity.

It will be immediately objected to my conception of anaphylaxis as above outlined that it is a mere hypothesis. But experimentally speaking, we possess only the simple fact, anaphylaxis. The rest is, and may remain, hypothesis.

We shall now enter briefly into the individual arguments which I desire to present in support of my conception of anaphylaxis.

The existence of a period of incubation in anaphylaxis is opposed to the idea of a chemical reaction and in favor of the development of a gradual vital process. Such a period of incubation seems natural enough on the enzyme hypothesis, for we know that the digestive ferments and internal secretions are gradually formed. The absence of uniformity in the length of this period of incubation, as also the gradual development of the intensity of the anaphylactic state, and the great irregularity in the time required for it to become maximum, also point to the formation of substances which, like enzymes, are the gradual result of cellular activities.

No matter what antigen is used, the anaphylactic state, when once induced, may last during the life of the animal. We may well ask ourselves whether it is rational to assume that every individual species of albumen which gains access to the cells through life gives rise to a special chemical substance to be forever preserved by the cells and humors. Why should nature be extravagant when a more economical mechanism would subserve the same result? The alimentary tract does not elaborate a special enzyme for every particular substance which is to be digested in it. A more economical method is observed. A very few enzymes are supplied to do the work, and it is only where an absolute chemical difference exists between the molecules to be acted on, as proteid and starch, for example, that an absolutely different enzyme is provided.

A brief interpretation of the symptoms of anaphylaxis in the light of the theories likewise affords evidence in favor of the enzyme hypothesis. There are all grades of anaphylaxis from a symptomatic standpoint. Pruritus is a very common symptom, showing conclusively that a part at least of the anaphylactic reaction takes place in the skin. Morphologically speaking, the skin is an epithelial structure, and the constancy of itching tends to support the assumption that the skin itself takes part in the elaboration of enzymes upon which the phenomenon depends.

Other symptoms, such as diarrhea, rectal tenesmus and intestinal congestion, point to the epithelial structures of the intestinal mucosa as participating in the process.

Acceleration of the respiration is frequently observed, and this has been attributed to the action of a special poison on the medulla, but it may with equal if not greater probability be ascribed to the part which the lungs themselves, particularly the epithelium lining the air passages, plays in the elaboration of anaphylactizing enzymes.

The blood pressure is always lowered. This is attributed by physiologists to intestinal paralytic vasodilatation, a most rational explanation of the fact, for the reason that profound hyperemia of the intestinal tract will always produce it.

All of the above symptoms disappear if the anaphylaxis is slight. If more severe, the animal may retch and vomit, and the fluids passed are often bloody. The animal may become ataxic, fall to the ground with dilated pupils, the respiration and heart action become accelerated and feeble, and death may occur from asphyxia.

These symptoms, together with the fatal issue, are usually attributed to the action of a hypothetical poisonous chemical substance upon the central nervous system. May they not with more probability be attributed to the profound reflex disturbances which are set up by the anaphylactic process?

If all epithelial and endothelial structures of the organism take up suddenly and simultaneously the vicarious function of digestion, may not the intensity and ubiquity of the process, with its reflex effects, as well as the digestive products involved, adequately account for the symptoms?

The death of the animal in anaphylactic shock is by no means infallible. More often than not it begins quickly to recover and in a short time recovers consciousness and sensibility, and though some diarrhea may remain, becomes absolutely well. Is this what would be expected if the symptoms were due to a chemical poison? Why should the symptoms while at their worst show a natural tendency to become quickly ameliorated if they are produced by a chemical poison? This is not the case with any known chemical poison. A heavy metal poison, for example, after it has once produced diarrhea, vomiting, purging and shock, leads infallibly to the death of the animal, and on autopsy, the evidences of a severe gastro-enteritis are found.

Of the post-mortem appearances in anaphylaxis, we shall speak in a moment.

As has been above mentioned, the symptoms of anaphylactic shock are attributed by most observers to the action of a chemical poison upon the central nervous system. To these hypothetical poisons, Richet proposes the generic name "apotoxines." Now if a chemical substance, apotoxine, is really created by the action of an antigen upon its toxogenin, then the number of different poisons (apotoxines) will be limited

only by the number of antigens which can be found. Hence the apotoxine which results from egg albumin antigen is not identical, chemically, with the apotoxines which result from milk, spermatozoids, beans, cheese, castor oil, cacao butter, microbes, yeast, etc.

If the process of anaphylaxis is chemical, the symptoms should vary according to the different nature of the antigen from which the apotoxine was derived. In other words, different chemical poisons should produce different toxic phenomena. But as a matter of fact, whatever the antigen employed, the same symptoms which always characterize the anaphylactic shock will be developed. This striking and absolute identity in the symptoms produced points strongly to a peripheral cause, acting at least partly in a reflex manner upon the central nervous system, and not to the action of a variety of different chemical poisons.

The nature of the invasion of the anaphylactic phenomena is just what we would consider to be probable under such an interpretation. The symptoms come on suddenly in a minute or so. Then after quickly arriving at a fastigium, or acme, begin suddenly to subside. This is not what would be expected if the elaboration of a chemical poison were the cause of the trouble. On the contrary, the formation of a chemical poison would require, under the conditions of a physiological environment, an appreciable time to occur, and the distribution of this poison to the central nervous system would require a further lapse of time. Hence we should not expect the symptoms to appear suddenly, and after the poison had once been formed and distributed and the symptoms of anaphylactic shock had been finally inaugurated, they certainly would not tend immediately to disappear.

In an animal sensitized to a foreign proteid, the symptoms cannot be aggravated by doubling, trebling or quadrupling the dose of the second injection. This is strange behavior on the part of a chemical reaction to refuse to obey any quantitative laws whatever. On the basis of an enzyme hypothesis, these facts are easy to explain. If the anaphylactized animal may be regarded as one in which the entire epithelial structures of the body have elaborated an enzyme, and that the symptoms of anaphylactic shock from the second injection of proteid are due to the simultaneous development of a digestive process in millions of cells, then such a vicarious function could hardly be conceived to exist without carrying in its train a host of reflex phenomena. The similarity of symptoms produced, no matter what the nature of the antigen, is exceedingly intelligible under such a hypothesis, if we regard not so much the products formed as the process itself as being the cause of the symptoms. Likewise we will apprehend why the invasion is sudden, because the beginning of the process requires only the time consumed by the circulation in distributing the substance to be digested. The suddenness of the recovery may be explained on the ground of inhibition, while, if they are due to a chemical poison, there is no reason why it should suddenly cease to be deleterious. The cause for such an inhibition as has been assumed is reflex, for if reflexes can inhibit the gastric and intestinal digestion, then likewise they may inhibit cellular digestion. The fact that doubling the dose of the second injection does not aggravate the symptoms may be attributed to excess of proteid itself, as is the case with the gastric process when a great excess of proteid is swallowed. The mechanism of anaphylaxis, under natural conditions, is not attended by shock, and it is only under the artificial conditions of an experiment that a sufficient amount of foreign proteid can gain access into the organism to produce it.

Anaphylaxis is attended by leucocytosis. Leucocytosis is a normal accompaniment of gastro-intestinal digestion. Chemical poisons do not produce it, unless they bring about a gastro-enteritis, either at the time of their ingestion, or during the period of their elimination by the bowel, and even then the leucocytic reaction is not comparable to that observed in anaphylaxis.

If the anaphylactic shock and subsequent death are due to a chemical poison, the gastro-enteric symptoms must be due to the same poison, so that it would be quite natural on this assumption to look post mortem for the evidences of an inflammatory gastro-enteritis. But autopsy shows only congestion, — no erosion, infiltration, ulceration, necrosis or sloughing as are always to be found after death from corrosive chemical poison and after death from heavy metals which are eliminated by the gastro-intestinal tract.

Anaphylaxis has been produced in almost all common species of animals. In all these the symptoms are practically identical. It is difficult to explain this fact on the chemical theory. To do so, we are forced to assume that a great variety of chemical bodies act upon a great variety of animals in an entirely similar manner.

It has been pretty well determined that neither drugs nor crystalloids, but only albumenoids, produce anaphylaxis. In other words, that substances least liable to produce chemical combinations are the only sbstances which provoke anaphylaxis. The truth is that some quality inherent in proteids is responsible for this fact. May not this be their universal susceptibility to the action of ferments?

It is unnecessary to enumerate all the different proteids which have produced anaphylaxis, for every proteid substance that has been tested has given a positive result. According to the chemical theory, for every individual species of proteid in the world, the cells can elaborate a specific antitoxine or antibody, and consequently, if we should render an animal anaphylactic to a thousand of these substances, then a thousand different specific chemical antibodies or apotoxines would be formed. How much more natural to assume that every member of this series of a thousand proteids, from the fact alone of its being a proteid, is susceptible to

enzyme activity or digestion, hence to destruction!

It is important to note that anaphylaxis cannot be produced except to a very slight degree by peptone. Now peptone is a proteid, and if anaphylaxis is due to antibody formation, to chemical apotoxines, why are they not formed with peptone? The truth is that there is no physiological necessity for further digestion of peptone, and it is either excreted or oxidized without further elaboration, hence without the symptoms of anaphylaxis.

The transmission of anaphylaxis from one animal to another, or so-called passive anaphylaxis, seems at first sight better explained on a chemical than a physical hypothesis. But in the first place, passive anaphylaxis is not easy to reproduce, from twenty to fifty injections being required. This is in favor of the enzyme against the chemical hypothesis. Furthermore, passive anaphylaxis is ephemeral, presumably because only the ferments free in the blood stream are transmitted, and these soon disappear. Inasmuch as a passive heterogeneous anaphylaxis exists, that is, an anaphylaxis produced by the injection of sensitized serum from a different species of animal, the specificity of anaphylaxis becomes dubious and our faith becomes shaken in the idea of the formation of specific chemical compounds. The guinea pig is four hundred times more sensitive to anaphylaxis than the rabbit, a fact which is more readily understood on the enzyme than on the chemical hypothesis, for physiological variation is to be expected, chemical variation never.

The existence of anaphylaxis *in vitro*, that is to say, the formation in the test tube of a poisonous compound on mixing the blood of an anaphylactized animal with antigen, is at first sight more difficult to interpret upon the ground of an enzyme than upon that of chemical theory. However, another fact must be considered, namely, that the mixture of anaphylactized serum with antigen in the test tube is not always toxic. It should be so invariably if the reaction is chemical. As a matter of fact, the transference of a sufficient quantity of enzymes to produce anaphylaxis must always be fortuitous. The actual substance transferred may be in reality small quantities of an albumose. But how shall we explain the phenomenon of anti-anaphylaxis on the enzyme hypothesis? Anti-anaphylaxis was described by two distinguished American investigators, Rosenau and Anderson. They found that they could protect guinea pigs against anaphylaxis by injecting the antigen (horse serum) in large repeated doses into the peritoneum. Other investigators have not found the method at all infallible, and some have claimed that anti-anaphylaxis can only be obtained by intracerebral injections, — now an intracerebral injection would produce a trauma by no means negligible. The phenomenon of anti-anaphylaxis is simply due to the presence of a large excess of foreign proteid in the tissues, which paralyzes enzyme formation.

Many chemical substances, as, for example, atropine, calcium chloride, even water, interfere markedly with the development of anaphylaxis. If anaphylaxis is due to the formation of actual chemical compounds formed from proteid radicals, it is difficult to apprehend how the simple presence of stable chemical bodies like atropine or water can prevent it. On the other hand, it is easy to comprehend how such substances could interfere with or actually inhibit the formation of enzymes in the tissues by altering the physiological conditions.

In the rabbit and in man, the phenomenon of local anaphylaxis has been observed, that is, an increased sensibility to the second injection of the tissues in the neighborhood of the first. By the terms of the enzyme hypothesis, it is natural to think that the tissues in the neighborhood of the first injection, especially if they be epithelial, would naturally develop the greatest quantity of enzymes, and if such quantity were sufficient to completely digest the foreign proteid, the process might readily stop there.

Recent investigations have tended to diminish the original belief in the absolute specificity of anaphylaxis. Richet himself has described a condition of general anaphylaxis; that is to say, the injection of a foreign proteid confers upon the animal the capacity to react with all foreign proteids. If this should be proven to be the case, the bottom would fall completely from the chemical hypothesis, and we would be forced to accept a more vitalistic interpretation.

MEANS OF DETERMINING THE END RESULTS OF OPERATIONS ON HOSPITAL PATIENTS.

BY CHANNING C. SIMMONS, M.D., BOSTON,

Surgeon to Out-Patients, Massachusetts General Hospital; Assistant in Surgery, Harvard Medical School.

THE following suggestions are published hoping they may be of some value to men who wish to determine the end results of their operations on hospital or other patients. It represents the method I have used in tracing cases, and in my hands has been very successful. There is nothing new or original about it. I have used it only in following cases operated upon at the Massachusetts General Hospital, but probably a similar system of recording admissions, addresses, friends of patients, etc., exists at all large hospitals. At the Massachusetts General Hospital there is a record kept at the office of the patient's name, if a woman her own Christian as well as her husband's first name, the address, the name and address of two friends, one having a permanent residence and the other living near to be notified in case of emergency, as well as the name and address of the physician recommending the case to the hospital. The names and spelling of the names at the office is much more accurate than in the records.

At this hospital also a letter is sent to every patient one year from the date of discharge inquiring as to his health, and asking him to call if possible for an examination. Large numbers

of these letters are answered, but many are returned "unclaimed." Many of this latter group can be traced if the trouble is taken, and at present there is a second or third letter sent to the recommending physician or to the friends.

In an article published in 1907 [1] we attempted to determine the end results of the 416 cases operated upon, and were able to trace 378 cases, or 90.8%. In 1909 [2] we attempted to trace the 112 cases of cancer of the mouth operated and were able to determine the end results on all but 7, or 93.75%. In a third series of cases,[3] reports were obtained on 152 of the 162 cases operated upon, or 93.8%.

Deaths are very easily determined, and the New England states at the respective capitals, asking if the patient has died in that state. (You get more information out of No. 7.)

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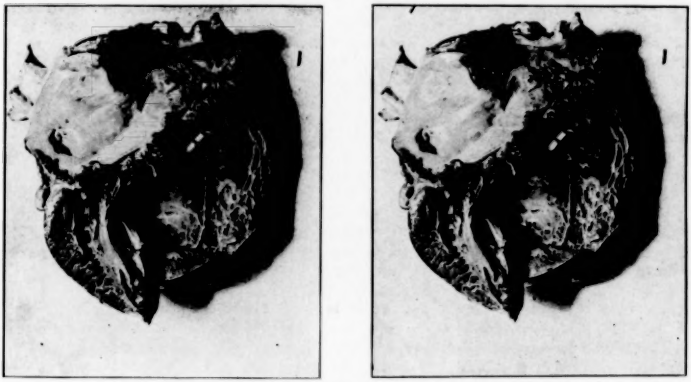
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PALFREY AND AYER.

Stereoscopic Photograph.



Vegetative endocarditis, showing ulceration and rupture of chordæ tendineæ.

example, try the Cambridge and Everett directory also. (Directories of all the towns in this state are in the office of the State Board of Charities at the State House.)

6. In following cases of malignant disease, before doing any of the above, look through the files of deaths in the Bureau of Vital Statistics at the State House to rule out patients dead. (There is a card index of all deaths in the state, with a reference back to the death certificate.)

7. If the patient came from a small town, write to the postmaster or town clerk asking for information. They are usually glad to give it, or at least will tell you where a relative lives.

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Deaths are very easily determined, and the greatest difficulty is found in tracing the floating population of the mill towns, as Lowell, Lawrence, or Fall River.

1. Write letters to the patients at the addresses given in the records and verified in the Admission Book at the office. In this book is the given name of all women as well as the married name (Mary Ann Smith, — Mrs. John Smith). The given name is useful in determining if the patient is dead, and the other in finding the address in the directories.

2. Write to the husband or friends at the address given in the Admission Book.

3. Write to the doctor recommending the case to the hospital, or if it is sent in from the Out-Patient Department, look up the card there to determine if the patient was sent there by an out-of-town physician. Other data may also be determined from this card, as many return to the Out-Patient for dressings or other diseases.

4. Look up the husband, friend or physician in the telephone book.

5. Look up the patient, husband or friend in the local directory of the town in which they lived for the year the patient was operated upon, and follow through each edition till the name is omitted. (The directory often says, "moved to —," "deceased," "Mary, widow of —," etc.) If the patient lived in Somerville, for example, try the Cambridge and Everett directory also. (Directories of all the towns in this state are in the office of the State Board of Charities at the State House.)

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10. Sometimes the police will help you out, especially in the smaller cities, if you use the hospital name and tell them what you want the information for.

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12. The Overseers of the Poor or the Associated Charities have records of certain of the cases.

13. Make all letters polite and state what you want and why you want it. If the letters are individual and personal you are much more likely to get answers than if "Neostyle" letters are sent. In dealing with public bureaus use the hospital name and you will get more attention.

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Clinical Department.

A CASE OF CHRONIC INFECTIVE ENDOCARDITIS WITH ULCERATION OF CHORDÆ TENDINEÆ.*

BY FRANCIS W. PALFREY, M.D., AND JAMES B. AYER, M.D., BOSTON.

The following case, belonging to the group of prolonged infective endocarditis, due in this instance to the organism of Poynter and Payne, is reported chiefly on account of two striking features, possibly mutually related, namely, the sudden development of a remarkably loud and sharp first sound at one period in the course of the disease, and the finding at autopsy of spontaneous rupture from ulceration of all but one of the chordæ tendineæ of the mitral valve. Noteworthy also were myocardial changes as described in an appended report by Dr. F. B. Mallory.

Mrs. X., age at death thirty-three, had her first attack of rheumatic fever at fourteen years, followed by heart trouble. This combination recurred several times since. For five years she had no attacks of rheumatism, but several times had attacks of weakness attributable to her heart, recovering after rest and cardiac stimulation. In May, 1911, she suffered in the epidemic of tonsillitis then prevalent in Boston, having, however, only vague pains about the shoulders with the tonsillitis. In October, 1911, she had "grippe," from which she did not rally; in December, weakness was her one persistent symptom. It was found at this time that there was a constant but irregular fever, reaching at times 103°. Examination of the heart showed now as previously for a number of years evidence of mitral stenosis and regurgitation, — a sharp first sound at the apex preceded by a short presystolic roll and followed by a systolic murmur, palpable thrill suggested at times; slight lateral enlargement of heart — 3 cm. to right and 10 cm. to left of median line. Pulse regular, of small volume and tension. The diagnosis of infectious endocarditis was, on Dec. 26, confirmed by evidence of an embolus to the toe and one to the brain, followed three days

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later by sudden unconsciousness, with paralysis of face and arm. Proof of a septicemia was furnished at this time by a blood culture which showed diplococcus rheumaticus of Poynter and Payne.[1] Paralysis and aphasia, which persisted after unconsciousness, disappeared within three weeks and temperature fell to normal, but after another week a relapse occurred. Until now (about Feb. 1) repeated examination of the heart had shown no audible change in the valvular condition; at this time, however, the patient was awakened at night by a sharp pain in the left side, accompanied by rapid and weak heart action and difficult breathing with cyanosis. When seen six hours later, on approaching the bed a sharp snapping sound was heard fully three feet away from the patient, and on further examination this was found to be the first sound of the heart, and to be just preceded and followed by murmurs as before, only rougher in quality; the impulse against the chest wall synchronous with the first sound was very marked. A few days later systolic pressure was 110, diastolic 60 (Tycos). Blood was of good color, with leucocytes a high normal (9,200). Urine persistently normal. No skin exanthem appeared at any time.

From this time on for a month the symptoms were those of a gradually failing myocardium, coupled with persistent active endocarditis. There was no evidence of embolus lodgment in the last month of life. Death on March 2 from heart weakness. Treatment with considerable doses of salicylic acid preparations of various kinds seemed to have no effect upon the course of the disease. An autogenous vaccine was used but twice, and with similar effect.

At autopsy the heart was found moderately enlarged, both as to its cavities and walls. Valves were of normal measurement except the mitral, which furnishes the reason for this article. Before opening the heart this orifice was seen to be partially blocked by finger-like processes, so that the valve was markedly narrowed; on being laid open the valve was unrecognizable, the cusps being throughout transformed into a warty mass. These vegetations not only covered the valve cusps, but extended upward on to the auricular and downward on to the ventricular endocardium, especially involving the region of the papillary muscles. Most important of all, on close examination of the accompanying stereoscopic photograph it will be seen that the process has been so extensive that all except one small band of the chordæ tendineæ of the posterior cusp have been ulcerated away, thus leaving thickened warty valve cusps flapping in the blood stream. Presumably the rupture of one of these weakened bands was responsible for the sudden cardiac dyspnea occurring one month before death, and the simultaneous appearance of the loud first sound heard three feet from the bedside may well have been made by a tendonless valve such as is shown protruding in the photograph. The associated pain could be explained by a large fresh infarct found in the spleen. Besides the above-described mitral lesion, a few vegetations were found upon the aortic valve, but not in position or of size to give symptoms or signs of aortic leakage. Infarcts in the kidneys were numerous, of old and recent date. Brain not opened.

MICROSCOPIC FINDINGS.

BY F. B. MALLORY, M.D.

Examination of the lesions on the valve and chordæ tendineæ show an outer comparatively thin layer of living organisms appearing in masses and where well separated from each other in chains. They rest on a thick layer of finely granular material, evidently the necrotic remains of previous growths of the organism. Beneath the dead and living bacteria is edematous connective tissue. The dead masses of bacteria are infiltrated in places with swollen endothelial leucocytes, some of which have large lobulated nuclei, others multiple nuclei. Similar leucocytes occur in the connective tissue. Polymorphonuclear leucocytes are present only on the free surface among the living organisms.

Sections of the myocardium show a variety of lesions, all probably related to each other, but separable into two groups.

1. An occasional acute infectious lesion in the wall of an artery. Each of these lesions consists of a localized necrosis of the wall, with fibrin formation and extensive inflammatory infiltration, especially in the tissue surrounding the vessels. The cellular part of the exudation consists of polymorphonuclear and endothelial leucocytes. One small artery is filled and surrounded by polymorphonuclear leucocytes. No micro-organisms can be found in the lesions. Fibrin thrombi have formed in the lumina of some of the vessels, more or less occluding them. Still other vessels show complete organization of old thrombi.

An occasional old perivascular lesion can be found consisting of collections of endothelial leucocytes surrounded by an increase of connective tissue. These are the lesions often considered so characteristic of acute articular rheumatism. Their real significance is the reparation stage of acute infectious lesions of the walls of arteries. They may occur in the kidney and liver as well as in the heart.

2. An occasional area in which the muscle fibers are necrotic and homogeneous, and are being invaded by endothelial leucocytes. These lesions may be toxic in origin, but are more probably due to disturbances of nutrition, owing to obstruction of small vessels by the infectious lesions just described. Besides these acute lesions, there are numerous small and large irregular scleroses in the muscle, often in close relation to blood vessels, where the muscle fibers have disappeared (as the result of necrosis) and the surrounding connective tissue and capillaries have shrunken together, giving an appearance of scar formation. Endothelial leucocytes containing pigment may still be found in some of the spaces formerly filled by muscle cells.

This case of recurrent or chronic infectious endocarditis is instructive pathologically not only because of the valve lesion, but because it shows various stages of acute infectious lesions of the arteries of the heart and the degenerative changes resulting therefrom in the myocardium and terminating in patches of sclerosis.

[1] Description of organism: In bouillon: cloudiness in two days; no hemolysis. Culture on blood agar shows very minute, almost colorless colonies. The organism on examination is a Gram-positive coccus which occurs in chains. The cocci are rather small and vary somewhat in size and shape. (Dr. F. L. Burnett.)

Reports of Societies.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

ONE HUNDRED AND SIXTH ANNUAL MEETING, HELD IN ALBANY, APRIL 15–18, 1912.

Monday, April 15.

MEETING OF THE HOUSE OF DELEGATES.

PRESIDENT'S ANNUAL REPORT.

THE President and the various committees presented their annual reports. That of the President, DR. WENDELL C. PHILLIPS, of New York, was almost

entirely devoted to the proposal of a plan of reorganization looking to a change in the annual meetings by which they should correspond in a general way to those of the American Medical Association. With the consent and hearty co-operation of the Council, a temporary plan of this character, providing for five sections, had been arranged for the present meeting, and he recommended that the by-laws should be so changed as to carry into effect such a permanent reorganization. Later, the House of Delegates adopted resolutions contemplating the necessary amendments.

OTHER REPORTS.

The Secretary reported that the membership of the society on Jan. 1 was 6,865, a gain of some 250 during the year. The Committee on Public Health reported that it had made a systematic inquiry as to the laboratory facilities existing in the different counties, and that while in a number of them there was lack of such facilities, it was deemed inexpedient to recommend at the present time an effort to secure from the Legislature an appropriation for county laboratories. The Committee on Legislation gave a list of the bills of interest to the profession which had been enacted during the recent session of the Legislature. Among these was one, carrying an appropriation of $65,000, which provided for the establishment of a state institution for the study of malignant and allied diseases at Buffalo. The Committee on Experimental Medicine reported success in preventing the passage of any anti-vivisection bill at Albany, and gave expression to the special indebtedness of the profession for this result to the self-sacrificing labors of such men as Drs. Ewing, Park and Flexner, of New York, and Dr. Cannon, of Harvard University. The officers of the society elected at this meeting have already been published in the JOURNAL.

Tuesday, April 16.

GENERAL SESSIONS.

ANNUAL ORATION ON MEDICINE: RELATION OF EXACT SCIENCE TO MEDICINE.

Addresses of welcome were made by GOVERNOR DIX and MAYOR MCEWAN, of Albany, and greetings from the American Medical Association were presented by DR. ABRAHAM JACOBI, President-elect; after which DR. HARVEY W. WILEY, recently of Washington, delivered the annual address on medicine, on the above subject. In it he treated *seriatim* of the contributions of the various sciences to medicine. In concluding, he spoke of the vast possibilities afforded by the modern doctrine of immunity, and then stated that the introduction of scientific principles into medicine had shown a kernel of truth in all schools and sects, though each had exaggerated one idea and thus had become narrowed. Creeds, he said, narrowed the human mind and led to prejudice and strife, but science had erected a monument from which the true physician could survey all fields and take to himself whatever was found good.

DR. ALFRED W. FERRIS, of Watkins, recently President of the State Commission in Lunacy, made an address on the

PREVENTION OF INSANITY.

After speaking of the continuous increase of insanity in the state, he said that the most sensible course to endeavor to put a stop to this was to ascertan the avoidable causes of insanity and to limit the production of this class of unfortunates. A campaign for this purpose had been inaugurated, and it had been found that the causes chiefly responsible were alcohol and syphilis. The subject was being studied especially from the viewpoints of environment and heredity, and he urged the establishment of psychopathic wards in general hospitals for the temporary detention of insane patients. The responsibility for the prevention of insanity, he said, lay at the door of the physicians of the state.

HOMER FOLKS, Secretary of the State Charities Aid Association, made an address on the

PRESENT STATUS OF THE MOVEMENT FOR THE PREVENTION OF TUBERCULOSIS IN THE STATE OF NEW YORK.

In it he gave the history of the beginning and progress of the movement, and told what was being done at present by the various public and private agencies. The apparent increase of the death-rate in the early stages of such a campaign, he said, was no doubt due to more accurate diagnosis, and he did not believe that the movement had yet been long enough in operation to show definite results. The work, however, was now so rapidly outgrowing the bounds of private philanthropy that it should become more a matter of public concern and of legislation.

DR. G. H. MAKUEN, of Philadelphia, made an address on the

PREVENTION OF DEAFNESS AND THE INSTRUCTION OF THE DEAF CHILD.

He spoke particularly of the very large proportion of cases due to measles and scarlet fever. In ear complications pain was the danger signal, and, in nine cases out of ten, paracentesis of the drum membrane was the procedure demanded. The key to the situation in the matter of the prevention of deafness was largely in the hands of the general practitioner. In speaking of the education of the deaf, he said that it should be borne in mind that while deaf children were naturally behind normal ones in development, deafness did not imply mental deficiency.

DR. GEORGE E. DE SCHWEINITZ, of Philadelphia, made an address on the

PREVENTION OF BLINDNESS AND THE INSTRUCTION OF THE BLIND CHILD.

This was naturally largely devoted to the subject of ophthalmia neonatorum, and he also paid considerable attention to trachoma. He spoke particularly of the advantages of systematic examination of the eyes of school children, and in the closing portion of the address described some of the modern methods of training the blind.

Wednesday, April 17.

ANNUAL ORATION IN SURGERY: THE DUTY OF THE FAMILY PHYSICIAN IN THE MANAGEMENT OF SURGICAL CASES.

This was given by DR. J. M. T. FINNEY, Professor of Surgery in Johns Hopkins University. In it he treated the subject from the standpoint of the patient, of the physician and of the surgeon. Surgery, he said, should be restricted to the trained surgeon. He quite agreed with the now general feeling that the hospital was really the only place in which to be surgically ill, but this was with the proviso that the hospital surgeon should be thoroughly competent. Hospitals were multiplying so rapidly everywhere that many were without skilled surgeons. Since the making of an early diagnosis was so important in many surgical conditions, the family physician should be a skillful diagnostician. An operation having been performed, the surgeon was solely responsible for the after-treatment,

and the medical attendant should not interfere in any way. In the matter of fees, the surgeon should see that the physician got his deserts by showing the family his value. There could be no doubt that surgeons sometimes charge fees out of all proportion to the services rendered.

DR. WALTER B. CANNON, Professor of Physiology, Harvard Medical School, delivered an oration on

THE BENEFITS OF VIVISECTION TO MANKIND.

He reviewed the history of animal experimentation and dwelt upon a number of the various conditions in which the results of this had been the means of saving not only many lives, but also a vast amount of suffering. In closing, he paid his respects to the anti-vivisectionists, whose whole course, he said, was characterized by fraud, duplicity and ignorance.

SECTION ON MEDICINE.

A CLINICAL STUDY OF RELAPSES IN TYPHOID FEVER.

By DR. HERMAN F. L. ZIEGEL, of New York. He defined a relapse as a characteristic repetition, with a regular evolution of the cardinal signs of typhoid fever, after defervescence of the original attack, and a recrudescence as the condition when the temperature had been low and then rose again, with increased severity of symptoms. Relapses, he said, might be due to (1) a reinfection; (2) a difference of strains of typhoid bacilli in the system or the persistence of the organisms in the gall bladder; (3) the carrying of the scab of an old ulcer to another part of the intestine. He showed a chart of 21 relapses which had occurred in a series of 168 cases, in patients whose ages varied from sixteen to fifty-six years. They began in four to five days after the disappearance of pyrexia, and the average duration was 14.28 days, as against 22 days of the original attack. In 8 cases there had been a persistence of tumefaction of the spleen during the apyrexia. The principal characteristics were rise in temperature, enlarged spleen in 25%, roseola in 17 cases, leucopenia in 55%; a positive Widal, where it had been negative previously, in 1 case, and a positive blood culture in 2 cases. On account of partial immunity, the attacks were mild. In the diagnosis, differentiation had to be made from typhoid pyelitis, Brill's disease, pneumonia and a recrudescence. In the future, it seemed probable, the treatment would be typhoid vaccination as a prophylactic measure to prevent relapses.

CONGESTION OF THE LIVER.

By DR. B. W. STEARNS, of Unadilla. The symptoms of hepatic congestion were headache, coated tongue, constipation (sometimes alternating with diarrhea), lack of appetite, interrupted sleep and chilly spells, while physical exploration showed the liver to be enlarged. Jaundice was rare. In his cases the condition lasted from a few months to two or three years. The method of treatment which he had found successful in effecting a cure consisted in the administration of ¼ gr. of calomel every fourth day, in addition to small doses of camphor and tincture of iodine.

VACCINE THERAPY IN MEDICINE.

By DR. T. WOOD CLARK, of Utica. He expressed the opinion that vaccines were of more service in chronic than in acute infections, in which they might do harm. In the early period of these the body was as a rule overburdened by the effort to create immunity, and in this negative phase they might even prove fatal. The great value of vaccines in typhoid fever prophylaxis had been distinctly proven in both the British and American armies. They were also very useful in preventing relapses and complications, as well as in curing typhoid carriers; but during the acute stage of the attack their benefit was questionable. In pyelitis, cystitis and bacilluria from the colon bacillus, doses of 200 to 1,000 millions of autogenous and stock vaccines had proved valuable, and in genito-urinary tuberculosis, where there was distress from a secondary colon bacillus infection, tuberculin and colon vaccine afforded great relief. Furunculosis was the ideal disease for this method of treatment, as it complied with the indications; being chronic, a localized infection and with pus easy of access for the manufacture of an autogenous product. Here injections of 50 to 600 millions should be given at intervals of five to seven days. In acne the acne bacillus and staphylococcus vaccine had proved curative, and other skin affections, such as eczema and erythema multiforme, had also been cured by vaccines. In his experience, the efficacy of streptococcus vaccines in septicemia and erysipelas had seemed very doubtful. In vulvo-vaginitis he had succeeded in curing cases in a little over a month with vaccines, while the time required for curing similar cases treated in other ways was about ten months. In Riggs' disease good results were obtained with a vaccine made from the pus in the sockets of the teeth. In general, the vaccines should be autogenous, and the cases carefully selected. It was best to begin with small doses, and the patient should be watched for reaction symptoms.

GRAPHIC METHODS IN THE DIAGNOSIS OF HEART LESIONS.

By DR. L. H. NEUMAN, of Albany. He gave a demonstration of the polygraph, illustrated with charts showing the various curves, and urged the use of this instrument of precision by the general practitioner. He had found the employment of an arm band more reliable than the taking of tracings from the radial artery.

THE SIGNS OF OVERDOSAGE IN DIGITALIS ADMINISTRATION.

By DR. W. A. BASTEDO, of New York. The subjective symptoms were loss of appetite, headache, oppression about the heart, with palpitations, tachycardia and consciousness of skipped or premature beats. The objective signs depended on the manner of examination, and the electro-cardiograph showed the following parts of the heart to be affected: the sinus node, with either alternation in rate of beat, slowing and acceleration, minus arrhythmia; the bundle of His, with partial or, very rarely, complete heart block; the ventricular muscle, with excitability, an early indication of toxicity, with the production of extrasystole, occurring frequently; possibly all three combined, as evidenced by coupled rhythm, phasic arrhythmia, or *pulsus alternans*. The coronary artery might be affected, and the *pulsus alternans* perhaps be caused by deficiency in the cardiac nutrition due to the spasmodic action of digitalis upon the vessel. In a study of 90 cases at Bellevue Hospital in which digitalis was used therapeutically, Dr. Bastedo found that 25% showed some toxic manifestations.

THE PHYSICAL TREATMENT OF ARTERIAL HYPERTENSION.

By DR. EDWARD C. TITUS, of New York. The diet, he said, should be modified according to the individual and the condition of the kidneys. Usually the amount of food, as well as the proteids, was to be reduced. A liberal milk, buttermilk and vegetable diet was serviceable. The amount of exercise should be gauged by the blood pressure, and massage was advisable when the patient was unwilling to take exercises. Cold baths

were not to be recommended, but prolonged warm immersions, followed by showers and a rubdown, were likely to prove beneficial. Much benefit was also to be derived from daily treatments with electricity in the form of autocondensation.

HYDROTHERAPY AND MECHANOTHERAPY OF ARTERIOSCLEROSIS.

By Dr. JOHN M. SWAN, of Rochester. He regarded the Nauheim baths as harmful, instead of beneficial, but recommended the Russian vapor and neutral full immersion baths. As a rule, the blood pressure was somewhat lowered by autocondensation; electrical treatment, and, when used judiciously, the faradic, galvanic and high-frequency currents were of service in relieving the sensory skin disturbances.

HYPERACIDITY.

By Dr. GEORGE R. LOCKWOOD, of New York. Hyperacidity, by which was meant an abnormal increase of hydrochloric acid in the stomach during the digestive period, was always to be regarded as a symptom, and in his series of cases it was present in 13.8%. It was generally supposed that dietetic errors were an etiological factor, but in his opinion this was not the case. In 80% of his cases of hyperacidity there was some organic cause. Twenty-five per cent of the cases were in gastroptosis, 19% in ulcer of the stomach or duodenum, 9.5% in chronic appendicitis, 11% in gastric atony, 5.5% in gall-bladder disease, 5.5% in chronic gastritis and 4% in cancer. The remainder, about 20%, were functional or undiagnosed. Of 233 cases of gastroptosis, 27% showed hyperacidity, and the greater the degree of muscular error, the greater was the hyperacidity. In ulcer, as in cancer, the pyloric obstruction was a factor. Thirty per cent of all the gall-bladder cases had hyperacidity, and here the condition might have been due to pylorospasm.

TOXEMIA OF PREGNANCY: A CONSIDERATION OF TREATMENT.

By Dr. W. M. BROWN, of Rochester. On account of the lack of positive knowledge regarding the origin of the toxic substances, scientific prophylaxis was not easy, but as there was now known to be present a marked protoplasmic degeneration in the liver, kidneys, heart and brain, the establishment of a well-balanced elimination of metabolic products was to be recommended. The presence of a large ammonia coefficient and acetone in the urine was to be ascribed to cell destruction; therefore, tissue energy must be conserved and the patient built up. As there was usually a decrease in the calcium salts, the administration of calcium lactate (which might be by enema) had been found of advantage. In severe cases with symptoms of central origin the careful watching of the circulation had proved of great value. Magnesium sulphate, venesection, hot packs and intravenous infusion of saline or cane sugar solution were all of service. Veratrum he thought might be dangerous by adding another poison to the toxins already in the system. Delivery was to be the last resort.

THE TREATMENT OF TYPHOID CARRIERS.

By Dr. FREDERICK M. MEADER, of Syracuse. The treatment he advised was by immunization. The amboceptors could be increased by injecting a vaccine of typhoid bacilli in which the vitality of the organisms was impaired but not destroyed. In some instances it was better to use a stock rather than an autogenous vaccine, since the organism might have become immune to that particular host's antibodies. In the case of two typhoid carriers in whom he had employed the vaccine treatment, the bacilli had entirely disappeared from the stools. In one of these, however, the bacilli had previously disappeared and then returned, so that he could not say positively that the patient had been cured. A third case was still under treatment but showing improvement. Comparatively large doses were required.

THE RESULTS OF THE EARLY DIAGNOSIS OF URINARY TUBERCULOSIS.

By Dr. W. F. BRAASCH, of Rochester. The early diagnosis of renal tuberculosis was of great importance, as the cure of the condition without surgery was exceptional. Commonly, however the true nature of this affection was not recognized early, and the usual diagnosis made was Bright's disease, on account of the presence of albumin in the urine, pus not being looked for. If no pus was to be found, tuberculosis could be excluded. With pus present, the diagnosis was to be established either by the detection of the tubercle bacillus or by guinea-pig inoculation. In some instances physical examination revealed a thickened epididymis, which was an important sign. By cystoscopy could be determined the localization of the process and degree of bladder involvement: whether the infection were ascending or descending; which kidney was affected; whether both kidneys were involved; and the functional capacity of the organs. In his opinion, the use of tuberculin was valueless.

CLINICAL VAGARIES IN CERTAIN FORMS OF LIVER DISEASES.

By Dr. NATHAN E. BRILL, of New York. He reported two interesting cases. The first was that of a young man giving gastric symptoms of pain and vomiting for over three years. At the Lebanon Hospital the diagnosis of ulcer of the stomach or duodenum was made, but an exploratory laparotomy disclosed no such condition. Later, he had chills, fever and jaundice, and after his admission to Dr. Brill's service at Mount Sinai he developed pain radiating to the right shoulder. Physical examination revealed only an enlarged liver. This enlargement increased, and he became so anemic that transfusion was performed. Absence of pancreatic ferments was shown by analysis of food from a duodenal bucket. Operation disclosed fluid in the abdomen, and on puncturing the liver, which was of an olive-green color, and much wrinkled, a few drops of gelatinous fluid escaped from the parenchyma. Autopsy finally showed that the condition present was an annular sarcoma which involved the duodenum and completely obstructed the bile and pancreatic ducts. The other case Dr. Brill believed to be probably one of hyperplastic cirrhosis of the liver, with an increase both in the number of cells and in the intercellular, fibrillar connective tissue. The liver was enlarging daily, but no ascites was present.

NON-SURGICAL TREATMENT OF EXOPHTHALMIC GOITRE.

By Dr. S. SOLIS COHEN, of Philadelphia. Both medical and surgical treatment, he said, had their places in this syndrome. Not all cases were due to hyperthyroidism. He had met with many instances with all the symptoms except goitre, and these recovered without operative interference. Some cases, he believed, recovered spontaneously. The important points in the treatment were early diagnosis, individualization of cases, rest and appropriate medicinal adjuncts. Fresh air was beneficial, and the system should not be overtaxed with proteids and carbohydrates. Auto-intoxication was to be combatted by flushing the

bowel and the use of such drugs as calomel and naphthalene. To meet special symptoms neutral quinine, hypobromide, cactus, strophanthus and digitalis were of service, and the systematic application of hot and cold, by means of electricity or water, might be employed to bring up the vasomotor tone. Where the enlargement of the gland was an early symptom, the application of iodine, in ointment, sometimes promoted absorption. The high-frequency current had proved useful. There was no specific for this affection, but in some instances Beebe's serum was of value. From the organic extracts the best results were obtained with fresh extracts injected hypodermically or with the gland eaten fresh.

(To be continued.)

Book Reviews.

The Principles of Pathology. By J. GEORGE ADAMI, A.M., M.D., LL.D., F.R.S., Professor of Pathology in McGill University, and Pathologist to the Royal Victoria Hospital, Montreal; late Fellow of Jesus College, Cambridge, England. Vol. I. General Pathology. Second edition, revised and enlarged, with 329 engravings and 18 plates. Philadelphia and New York: Lea & Febiger. 1910.

The first edition of this admirable treatise on general pathology was reviewed at length in these columns (JOURNAL, 1909, clxi, p. 335). The demand for a second edition within such a short time is evidence of the welcome Adami's Pathology has received. It is truly a monumental work; for thoroughness, for breadth of view, for accurate and detailed descriptions, and for clear and wise discussion of pathological problems, it stands at the head of English and American pathologies.

The approaches to medical science have been described as rugged and forbidding; but he who has courage and determination to ascend the heights finds a fair and truthful tableland of limitless extent. And so it is with this book. Its large size may discourage the student and other prospective readers, yet if they but make the attempt to explore the unknown country of pathology with Dr. Adami as their guide they will find the journey easy and the labor pleasant. He says in the preface, "There are different orders of minds, and no work can appeal to all. For myself, in beginning my studies, I found that I could easily remember the matter of such works as the larger Lyell's Principles of Geology, Foster's Physiology, and Fagge's Medicine, to cite examples in which there was a reasoned treatment of the subject, whereas to attempt to commit to memory 'cram books' laden with facts and names was mental agony. I saved time and gained knowledge by reading my subject at large. It is to those possessing a like order of mind that this work is addressed."

The book is written so interestingly that it will make an appeal to the beginner as well as to the advanced worker. The first volume in the second edition has been enlarged from 948 to 1,027 pages. Many changes and additions have been made. New matter has been added on nuclear function, the chemistry of the lipoids, inheritance, the cause of disease, fever, non-specific immunity, the diversion of complement and the Wassermann reaction, the relationship of lipoid substances to the immune bodies, grafting, metaplasia, tumors, hyaline degeneration, cholelithiasis and the ultramicroscopic causes of disease.

Primary Malignant Growths of the Lungs and Bronchi. A Pathological and Clinical Study. By I. ADLER, A.M., M.D. New York, London, Bombay and Calcutta: Longmans, Green, & Co. 1912.

This monograph is an exceedingly valuable and complete treatise on primary lung tumors, chiefly carcinoma and sarcoma. The text presents a careful historic, pathologic and clinical discussion of the subject, with especial reference to so-called precancerous influences, to the etiology of malignant tumors and to the relation of tuberculosis to pulmonary neoplasms. More than half the book consists of tables in which are recorded alphabetically the data of 374 cases of carcinoma, 90 of sarcoma, 99 doubtful and 18 miscellaneous cases, all collected from the literature. The volume is illustrated with fifteen photomicrographic plates, and two of gross specimens, one of them colored. These photographs were supplied by Dr. F. S. Mandelbaum, of New York, and Dr. S. B. Wolbach, of Boston. The work is scholarly and elaborate, and a delight to bibliophiles in science.

The Home Nurse's Handbook of Practical Nursing. By CHARLOTTE A. AIKENS. Illustrated. Philadelphia and London: W. B. Saunders Company. 1912.

This volume, which is uniform with the series of nurses' textbooks issued by this publisher, is described in its sub-title as "a manual for use in home nursing classes in Young Women's Christian Associations, in schools for girls and young women, and a working textbook for mothers, 'practical' nurses, trained attendants and all who have the responsibility of the home care of the sick." Such a work runs the risk of supplying that little knowledge whose chief danger is that it leads the possessor to believe she has all that is necessary. The information which it supplies, however, is in the main reliable, as far as it goes, and is undoubtedly better than none, or than the misinformation usually afforded by officious minders of others' affairs. Provided its limitations be clearly appreciated, it should seem a book capable of much useful service in the popular instruction of those concerned in one way or another with the domestic care of the sick.

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THE BICENTENNIAL OF TRINITY COLLEGE MEDICAL SCHOOL, UNIVERSITY OF DUBLIN.

On Thursday, Friday and Saturday of last week, July 4 to 6, was celebrated at Dublin the bicentenary festival of the Medical School of Trinity College. This event, marking an important epoch in the history of one of the world's ancient and famous seats of medical learning and education, not only merits interested attention on the part of physicians elsewhere, but affords appropriate occasion for reviewing the growth and achievements of this school of medicine and its alumni.

Trinity College, Dublin, was founded by Queen Elizabeth, under charter dated March 3, 1592. For eight centuries prior to this, Dublin had been a seat of monastic culture and teaching, but the present university began its continuous history only from the time of her edict. From the first, the new college was empowered to grant "the degrees of Bachelor, Master and Doctor, each in its proper time and in all arts and faculties." But the institution was poorly endowed, its students were few, and during its first quarter-century only one doctorate in medicine was conferred. It is interesting to note that the first stone of the college building was laid by a medical man, Thomas Smith.

For the next quarter-century medical education at Dublin languished. But in 1658 the degree of M.D. was conferred at Trinity on John Stearne, a man of distinction and energetic originality, who had studied medicine previously at Sidney Sussex College, in Cambridge, England. He settled in the practice of his profession at Dublin and enthusiastically took up the cause of medical education there. In 1661 he established near the college Trinity Hall, "to the sole and proper use and advantage of the study of medicine and of such as shall therein studye or profess ye same." In 1662 he was made professor of medicine in Trinity College. In 1667 the College of Physicians of Ireland was chartered, and Dr. Stearne became its first president. To him and to his energetic labors is really due the beginning of Trinity College Medical School.

Dr. Stearne died in 1669, but his work lived after him, and medical education continued to flourish in Dublin. Finally, in 1710, the Board of Trinity College laid out "a garden of physic," built "an anatomy house," which was opened on Aug. 16, 1711, and in 1712 the medical school was formally made a part of Trinity College.

From this time the progress of medical education in Dublin was continuous. In the early eighteenth century Sir Patrick Dun, then the leading physician in Dublin, bequeathed his estates to the Royal College of Physicians of Ireland to endow several professorships in the medical school, and in 1786 Trinity College and the College of Physicians were given by the Irish Parliament joint powers in the management of the school.

The next famous name connected with the school is that of Dr. James Macartney, who from 1814 to 1835 was its "professor of anatomy and chirurgery." He was a very great teacher and his reputation made the school a center for students from all parts of the kingdom. In 1825 a new lecture hall was erected for anatomy and chemistry. The number of students graduated in medicine during this time averaged about seventy-five each year. After Macartney's retirement the school had another period of slight decline, but in the middle of the nineteenth century rose to world-wide reputation from the work and teaching of Dr. William Stokes and Dr. Robert J. Graves. From its association with the Rotunda Hospital, also, the school has been able to foster a long line of eminent professors in obstetrics and has given Dublin international recognition as one of the world's great centers of teaching in midwifery.

Two physicians, alumni of Trinity College, have achieved distinction more in the field of letters than in that of medicine, but deserve honorable remembrance nevertheless. The first and most famous is Dr. Oliver Goldsmith. The second is Dr. Charles James Lever, who as a young physician distinguished himself during an epidemic of cholera; and who later, in his novels, "Harry Lorrequer," "Charles O'Malley,"

"Jack Hinton" and others, has preserved in literature faithful descriptions of student life in Dublin.

Trinity College Medical School has always required a preceding academic degree of its candidates for matriculation. For many years it gave only a degree in medicine, but during the past half-century it has awarded also degrees in surgery. Trinity College has now become the University of Dublin, and with its growth the medical school has likewise developed. The present spacious and extensive buildings and laboratories of the medical school have all been erected since 1885. They are beautifully situated, accommodate over four hundred students, and afford a worthy seat for so famous an institution. Ten hospitals in Dublin are closely affiliated with it in the provision of clinical material, facilities and instruction.

The recent bicentennial celebration was marked by imposing academic ceremonial. Representatives to the number of two hundred were present from many of the leading universities and medical schools throughout the world, and upon many of these delegates honorary degrees were conferred. Among the American physicians who were in attendance may be mentioned Sir William Osler, and Dr. J. Whitridge Williams and Dr. Howard A. Kelly, of Johns Hopkins University, Baltimore. One of the noteworthy ceremonies was the unveiling, on July 5, of a memorial stone to Dr. Stearne, the real founder of the school. Another was the unveiling, on July 6, of a memorial bronze to the late Dr. D. J. Cunningham, professor of anatomy.

Few things are more impressive than the acquisition of years and honor by human institutions which remain perennially young and vigorous by virtue of the youth and labors of many generations of worthy alumni. Physicians in America can justly take pride and pleasure in this noteworthy celebration in the history of a great school of medicine which has made notable contributions to the progress of medical science and education.

REDUCTION OF INFANT MORTALITY IN NEW YORK.

CO-OPERATION is now the watchword in the movement for the reduction of infant mortality. There are in New York City about one hundred and fifty different organizations engaged in work of one kind or another in behalf of babies. Until last year each society or other agency planned its operations without regard to what the others were doing, and under such conditions duplication of effort and much waste of energy were inevitable. Then the need of a clearing house for information and general co-operation began to be felt, and to meet this the Health Department and seven private milk station agencies last season united in forming the Association of Infant Milk Stations. Of that organization the present broader Babies' Welfare Association is the outgrowth. A report which has just been issued by the association shows that more than 30 organizations have already been enrolled with it, and the opinion is expressed that by the end of the summer nearly all the 150 mentioned will have done so. The work being done has also been considerably increased. On July 1 there were 13 more milk stations in operation than during last summer — 88, against 75 in 1911; 55 of which are conducted by the Health Department. While last season at the same date the number of babies enrolled at the stations was 5,920, on July 1 of this year the number was approximately 14,000 — nearly as many as the total enrollment of the whole summer season last year, and 2,000 more than remained in attendance at the season's close. In the month of June this year the infant mortality in the city at large was smaller than in June, 1911, and among the milk station babies the showing was still more favorable. Notwithstanding the extreme heat of the early part of last summer, the infant death-rate for the season was the lowest in the records of the Health Department, and it seems entirely fair to attribute this result to the more general efforts to save the babies; especially in view of the fact that while in the three hot months the general infant death-rate was 23.3 per 1,000, among the milk station babies it was only 15.4, notwithstanding that fully one third of the latter were ill when the attendance was commenced. It will be the earnest endeavor of the Babies' Welfare Association, with its comprehensive organization, to secure even better results during the present season. A central office has been established at the rooms of the Division of Child Welfare in the Health Department building, and a general executive committee appointed, with a secretary provided by the New York Milk Committee. Under the executive committee are six sub-committees, in charge of various branches of infant welfare work, and each of these is to make a regular weekly report to the central office.

EUGENICS AND IMMIGRATION.

In a recent issue of the *Independent*, Mr. Henry James Forman considers very pertinently some of the sociologic effects of immigration on our American civilization. He points out that the development of modern institutions for taking care of the diseased, imbecile and infirm has virtually suspended the selective death-rate. The unfit are protected and preserved and their survival encouraged in every way. Every improvement of environment, purchased by the labor and at the expense of the fit, lowers the general death-rate and increases the net birth-rate of the unfit, while the birth-rate of the fit is steadily declining. The remedy for this should lie in eugenics.

"The dual aim of eugenics is to check the reproduction of the unfit and to encourage the propagation of the fit. It is easy to formulate this aim, but very difficult to propose practicable measures for realizing it. There is, however, one effective means to the desired end in this country which lies ready at hand. It is the further restriction of inimigration. The enormous increase of immigration is recognized as a potent factor in the alarming decline of the American birth-rate. Restriction of immigration would help to counteract this tendency. In general, moreover, the exclusion of the undervitalized and undermoralized aliens now crowding into this country would contribute powerfully to conserve the national vigor."

The problem, suggested and in part discussed by Mr. Forman, is one of "great pith and moment," for it involves the whole future of our race and of American civilization. Unfortunately, or fortunately, its solution seems less likely to be determined by rational principles than by the natural factors which have hitherto governed race evolution and which we can only hope may prove as efficient as in the past. If human wisdom could only check the waste of natural process, the ultimate results of time might be expedited in their realization.

DOCTORS AND HOT WEATHER.

The hot weather of the past week has been nearly though not quite equal in intensity to that of the corresponding period last year. There has been the usual tale of heat prostrations and fatalities, most of which were due, as usual, to alcoholism or pre-existent cardiac disease. Perhaps doctors, though as busy as any one else in hot weather, mind the heat less than others because they are generally not afraid of it and know how to meet its exigencies. Light clothing, light diet and free ingestion of water are after all the chief essentials of hot weather hygiene. With these there is little reason why everyone should not continue his usual working activities. Yet though the heat really need not interfere with work, it does as a matter of fact incline our hearts to the thought of vacation. There is perhaps in literature no better or more amusing description of the phenomena of hot weather, its effects and the feelings which it prompts, than that written by a doctor,—our Oliver Wendell Holmes,—in his "Lines on Aestivation by a Latin Tutor."

> "In candent ire the solar splendor flames,
> The foles languescent pend from arid rames,
> His humid front the cive anheling wipes,
> And longs to err upon ventiferous ripes."

MEDICAL NOTES.

Pennsylvania Pharmaceutical Association. — The annual meeting of the Pennsylvania State Pharmaceutical Association was held in Philadelphia last week.

A Centenarian. — Mrs. Eliza Roon died last week at her birthplace in Philadelphia, at the alleged age of one hundred. She is said to have spent her entire life in the same house. She is survived by three children, three grandchildren and two great-grandchildren.

Foot and Mouth Disease in England. — Report from London on July 1 states that epizoötic foot and mouth disease has appeared recently among cattle in a dozen different localities in Great Britain. The origin of the infection is from Dublin, and the importation of cattle from Ireland into England has been temporarily prohibited.

Sardinian Treatment of the Placenta in Stillbirth. — In a recent issue of the *Hospital Bulletin*, Dr. Ejuar Hansen describes a peculiar custom, said to be prevalent among the peasantry of Sardinia, relative to the treatment of the placenta in stillbirth.

"If a child is stillborn, the navel cord is not cut, but the attendant awaits the expelling of the placenta. As soon as it arrives it is placed on a pan and fried, the child being kept close beside the pan. The hope of the parents and the attendants is that the heat will drive the baby's soul into the body through the uncut navel cord, and that the child may be brought to life."

BUBONIC PLAGUE IN PORTO RICO AND CUBA. — The epidemic of bubonic plague in Porto Rico, which we noted in the two preceding issues of the JOURNAL, not only continues in that island but also has extended to Havana, in Cuba. Report from Washington, D. C., on July 6, states that there was one death from the disease in San Juan, P. R., on July 3, and one in Santurio, P. R., on July 4. A plague-infected rat was found at Carolina, P. R. On July 3, two cases of bubonic plague were reported at Havana, and a general movement has been initiated for the examination and destruction of rats in that city. Dr. R. von Ezdorf, of the United States Public Health and Marine-Hospital Service, has been ordered from Mobile, Ala., to Havana to direct procedures.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, July 9, 1912, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 19, scarlatina 11, typhoid fever 5, measles 76, smallpox 0, tuberculosis 49.

The death-rate of the reported deaths for the week ending July 9, 1912, was 16.00.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday noon, July 6, 1912, was 169, against 342 the corresponding week of last year, showing a decrease of 173 deaths, and making the death-rate for the week, 12.24. Of this number 98 were males and 71 were females; 163 were white and 6 colored; 112 were born in the United States, 57 in foreign countries and 0 unknown; 27 were of American parentage, 116 of foreign parentage and 26 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 24 cases and 1 death; scarlatina, 14 cases and 0 deaths; typhoid fever, 4 cases and 0 death; measles, 108 cases and 1 death; tuberculosis, 63 cases and 23 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 8, whooping cough 2, heart disease 24, bronchitis 1. There were 13 deaths from violent causes. The number of children who died under one year was 43; the number under five years, 56. The number of persons who died over sixty years of age was 36. The deaths in hospitals and public institutions were 53.

A CONTESTED BOARD OF HEALTH ELECTION. — In Ipswich, Mass., a layman was recently elected a member of the local board of health to succeed a physician whose term of office had expired. The two other members of the board being also laymen, the town moderator refused to declare the election valid, since the law requires that at least one member of a board of health must be a physician. A petition has been filed for a writ of mandamus against the town clerk, and the matter is to be carried before the courts for settlement.

RETIREMENT OF MISS BEATTIE. — Miss Grace B. Beattie, who has acted as superintendent of the Brockton (Mass.) Hospital since its establishment in 1896, has recently resigned that position. A series of resolves has been passed by the trustees of the hospital commending and thanking her for the efficiency and fidelity of her service to it and to the training-school for nurses.

RECENT MEDICAL BEQUESTS. — As residuary legatee under the will of the late Dr. Francis Bacon, of New Haven, Conn., Yale University will receive about $500,000, of which $300,000 will be applied to the library, and $200,000 will be devoted to the aid of needy and meritorious undergraduates of the college and scientific school.

The will of the late Lora M. Poor, of Melrose, Mass., which was filed last week for probate, contains bequests of $200 to the Melrose Hospital and $1,200 to the Boston Floating Hospital.

RECENT ARRESTS AND FINES. — During the past week four persons were arrested in Malden, Mass., three in Brighton, and two in Everett, Mass., on charges of selling heroin unlawfully. Before the local courts, all were admitted to bail and their cases continued.

In the Boston municipal court last week two residents of this city were fined $10 each for breaking a quarantine ordered by the Board of Health. In each instance a child with diphtheria had been taken by its parents into the street.

BROOKLINE TUBERCULOSIS DISPENSARY. In last week's issue of the JOURNAL we noted the opening of a new tuberculosis dispensary in Brookline, Mass. This is the first township in Massachusetts to adopt the suggestion of the State Board of Health in establishing such an institution. The purposes of the Brookline dispensary are stated in its circular as follows:

"1. To provide a free dispensary for the examination, treatment and assistance of persons who have tuberculosis, also for persons in poor

health who may or may not be in the early stage of the disease and need to know in order to make an early and sure recovery.

"2. To secure proper care for tubercular patients in their homes, where the dispensary nurse will visit them when desired and attend to their special needs.

"3. To furnish free medical attendance in their homes when required by patients who are not in condition to come to the dispensary.

"4. To co-operate with other agencies in the town to furnish special diet (milk, eggs, etc.), and such other aid as may be required.

"5. To give advice and instruction as to the carrying out of proper treatment and as to the protection of other members of the family from infection.

"6. To aid patients to gain admission to suitable sanatoria and hospitals. Practically every tubercular patient in Brookline who needs it can be provided with proper sanatorium care.

"7. To assist discharged hospital and sanatorium patients to prevent relapses."

NEW YORK.

Vital Statistics. — The death-rate for the week ending June 22, 1912, was 12.16 as compared with 13.33 for the corresponding week of 1911. The rate for the first twenty-five weeks of 1912 was 15.17 as compared with 16.34 for the same period of 1911.

Traumatic Highway Mortality in June. — The National Highways Protective Society reports that in the month of June 50 persons were killed and 275 seriously injured by vehicles in the streets of New York City. Of these, 26 were killed (12 under the age of sixteen years) and 153 injured by automobiles. This is a marked increase over June of last year, when 12 persons were killed and less than 100 seriously injured by this class of vehicle.

Hospital Bequest. — By the will of Mrs. Caroline F. Butterfield, a wealthy New York widow who died recently, $5,000 is left to the New York Orthopedic Dispensary and Hospital, and to the New York Post-Graduate Medical School and Hospital, one-seventh interest in certain trusts and the residuary estate.

Infant Mortality. — In carrying out its share in the campaign for the reduction of infant mortality, the New York Diet Kitchen Association has added two visiting nurses to its staff of workers, thus supplementing the work of the Health Department and other agencies engaged in the campaign. Heretofore the association has held weekly conferences at its nine milk stations for the instruction of mothers, but lack of the necessary funds has prevented the rendering of this service more complete by the employment of district nurses.

A Verdict of $11,000 for Alleged Lung Injury. — On June 27, in the New York Supreme Court, Lammert Dekker, in a suit for $25,000 damages against a firm of contractors, was awarded by the jury a verdict of $11,000. The plaintiff is said to be dying from pulmonary tuberculosis, and the contention in his case was that the disease was the result of injury to his lungs from broken ribs caused by an accident when working in the employ of the firm. Physicians for the defense maintained that the fractured ribs, which were upper ones, could not have punctured the lung, while the opposite of this was maintained by the plaintiff's medical witnesses. In the explanation to the jury of the relation of the ribs to the lungs, use was made of a skeleton.

Moving Picture Tuberculosis Exhibitions. — For a number of years the Department of Health has given stereopticon tuberculosis exhibitions at night during the summer months, in the public parks of New York City. In 1911 the Tuberculosis Committee of the Charity Organization Society assisted in this work by furnishing a lecturer for a number of the exhibitions. But the lectures proved not worth while, the conditions being so poorly adapted for public speaking. Such audiences must be instructed by being interested and amused. During 1912, therefore, moving pictures are being given in place of the lectures, five of the best "tuberculosis" and "health" films being used, accompanied by the usual stereopticon views. Although the cost has been materially increased, yet the results in the form of increased attendance, and wider dissemination of information to the public, justify the expenditure.

The Tuberculosis Committee of the Charity Organization Society has actively assisted the Department of Health in this work, selecting the films, and supervising the exhibitions. Handbills announcing each exhibition are distributed by the tuberculosis nurses of the department throughout the district surrounding the park, and notices are also posted in the park itself.

Reduction of Infant Mortality. — Commissioner Lederle has received and accepted, on behalf of the Department of Health, an offer from the Committee for the Reduction of Infant

Mortality of the New York Milk Committee to render valuable assistance to the Department of Health in the conduct of the work of the infants' milk stations. Under the plan of co-operation which has been arranged, the medical members of the Committee for the Reduction of Infant Mortality will visit the Municipal Infants' Milk Stations from time to time and make reports to the Department of Health in regard to the conduct of the work, and will give constructive suggestions for such improvements in methods as seem to them advisable. These reports will be submitted to the Department of Health in writing and will be followed by personal conferences if necessary.

The committee will also render active assistance in the supervision and checking up of the records of the milk stations and collecting data for the purpose of reports and public statements. It will assign one or more persons capable of doing this statistical work and will actively co-operate with the Department of Health in the accumulation of useful and accurate data which may be made available periodically for the purpose of improved control of the work and the promotion of the highest efficiency.

The New York Milk Committee has already provided an executive secretary for the recently established Babies' Welfare Association, the object of which is to bring about the highest possible degree of co-operation between private agencies and the Health Department in the work of reducing infant mortality. In addition to the services rendered by this executive secretary, the committee will further assist the Department of Health in preparing material for publication and in carrying out plans for public meetings and exhibits of an educational nature.

DANGER FROM PUBLIC BATHS. — It was with much reluctance that permits for public baths along the Hudson and East rivers were issued by the Board of Health this season, and it is possible that in the future such baths may be discontinued. It has not been determined just how detrimental to health the polluted waters of the rivers are, but of the pollution itself there is no question. After considerable correspondence between the Health Commissioner and Mr. McAneny, president of the borough of Manhattan, an understanding for the present year was reached. In his last letter on the subject the commissioner says: "In passing upon similar applications from your department for the last two seasons I have been loath to express unqualified approval of the location of floating baths in the East and North (Hudson) rivers, but I was constrained to withhold objections by considerations of the very great comfort to the masses which these baths furnish during the hot weather. It seems to me that until the city can provide safer bathing facilities on a large scale, a development which I hope to see accomplished at the earliest possible time, it would be unwise for the city to attempt to prevent free public bathing along the waterfront in those locations least objectionable from the sanitary standpoint. While it is probably true that typhoid fever may be transmitted in this manner, there is no absolute proof that this is the case. The Department of Health believes that a very well-marked epidemic of acute catarrhal conjunctivitis (pink eye) was traceable to the public baths in 1903, but whether it was transmitted through the water or from one person to another by means of towels seems rather uncertain. There is, of course, no doubt that bathing in water polluted by sewage should be discountenanced, but under the present conditions the question in this city seems to me to have another very important side, as above indicated. The people will continue to bathe in the rivers during the summer months, whether there are public baths or not, until the city shall provide safer places for them to bathe. If I might be allowed to paraphrase a remark of Dr. Soper, it would seem that neither the people nor the sewage can be kept out of the water for the present." The points finally selected for the location of the public baths were such as were furthest removed from sewer outlets and where the water was found on investigation to be the least contaminated. The great free salt-water bathing station which the city opened last summer at Coney Island offers ample facilities to those who can afford the time and the carfare to make the trip there, and it is probable that the municipal authorities will establish large natatoriums, with a constantly changed supply of pure water, in the tenement districts, as soon as financial provision for this can be made.

THE RATIONAL FOURTH. — The celebration of Independence Day was attended with remarkably few accidents this year. A special feature of the holiday was a series of athletic events unquestionably the greatest ever held by any municipality, which was one of the various measures arranged by the mayor's committee for demonstrating the idea of a safe and sane Fourth. These were competitively participated in by more

than 12,000 boys and witnessed by probably 300,000 spectators, and the scenes of the contests were the fields of the Public Schools Athletic League and many of the parks, recreation piers and baths of Greater New York. The prizes, gold, silver and bronze medals, were all gifts from the city, and these appeared to be as eagerly coveted and highly prized as the wreath of victory in the contests of ancient Greece.

Public School Recreation Grounds. — Over one hundred recreation centers were started in the public school buildings in July. The children are instructed in singing, gymnastics, military drilling, and such occupation tasks as basket-making, and also have ample opportunities for athletics and games. Basket ball is played to a considerable extent, but baseball (which is played with a soft ball) is naturally the most popular sport, and a tournament for the championship in this is held every summer. Over thirty of the buildings are provided with shower baths, and it is hoped that eventually all of them will be so furnished. Some of the places are arranged exclusively for girls, and at certain hours, either in the morning or the afternoon, all are reserved for the use of mothers and babies. There are also seven kindergarten centers and twelve evening roof playgrounds. Including the open-air playgrounds, there are, altogether, 248 recreation centers, and last summer the average daily attendance at them was 125,528, and the total attendance 5,955,160 persons.

Fire in Psychiatric Institute. — On the night of July 3 the building of the Psychiatric Institute, on Ward's Island, was destroyed by fire, of unknown origin. It was in the immediate vicinity of the buildings of the Manhattan State Hospital for the Insane, but the flames were prevented from spreading to these, and the only one from which it was found necessary to remove the inmates was the Verplanck Building, nearest the institute, which is occupied by more than four hundred female patients. There was no panic among these or the other patients, and the manner in which the whole affair was managed reflects the highest credit on Dr. Mabon, the superintendent of the hospital, and his staff. The loss of the building itself, a three-story brick structure, is of no very great importance, but the total destruction of a most valuable library, consisting of nearly 4,000 volumes of works relating to insanity, as well as of the scientific equipment of the institute laboratories, is deeply to be regretted.

Current Literature.

Medical Record.

June 29, 1912.

1. Starr, M. A. *Neuroses Dependent upon Errors of Internal Secretion of the Ductless Glands.*
2. *Stern, H. *Rice in the Dietary of the Diabetic.*
3. Mayer, E. *The Ozena Investigation in the United States.*
4. Crothers, T. D. *Medical Studies of the Alcoholic Problem.*
5. Sheedy, B. D. *Pharyngeal Abscess.*
6. Lake, G. B. *The Use of Cultures of Staphylococcus Pyogenes Aureus in a Curious Outbreak of Diphtheria.*
7. Benjamin, D. *The Elimination of Lockjaw.*
8. Isaacs, A. E. *Traumatic Cyst of the Pancreas.*

2. Stern reports the results of a clinical study of the value of rice in the diet of diabetics. Nineteen cases form the basis of his conclusions. He finds that commercial rice furnishes substantially nothing to the organism besides an easily digestible starch. Given in suitable amounts, this starch is practically all absorbable and ready to serve as a calorifacient. It is, therefore, peculiarly adapted to supply carbohydrates without protein or mineral admixture, avoiding the formation of toxic products. Pronounced cases of acidosis are frequently suppressed by the ingestion of 100 gm. of rice, and the amount necessary does not necessarily increase the glycosuria. [L. D. C.]

New York Medical Journal.

June 29, 1912.

1. Knopf, S. A. *Primary Sources of Tuberculous Infection. Their Relation to Eugenics and the Cost of Tuberculosis.*
2. Reese, R. G. *The Effects of Salvarsan on the Eye.*
3. *Rytina, A. G. *Neosalvarsan.*
4. Ferguson, R. H. *The Use of Olive Oil to Prevent or Relieve Postanesthetic Vomiting.*
5. Bechet, P. E. *Alopecia Areata; Its Causative Factors and Therapy.*
6. Askenstedt, F. C. *A Simple and an Improved Quantitative Test for Indican.*
7. Parry, A. *The Care of the Health during the Menstrual Period and the Menopause.*
8. Finder, C. O. *A Theory of the Origin of Disease.*

3. Rytina presents a preliminary report on neosalvarsan, Ehrlich's new preparation. He finds that it is a highly soluble and absolutely neutral compound. The clinical results are just as effective as those of salvarsan, if not more so. Injections are free from the severe constitutional and local reactive phenomena that often follow injections of salvarsan. On account of the neutral reaction the preparation lends itself well to intramuscular injection, thereby allowing a more prolonged and protracted action. [L. D. C.]

Journal of the American Medical Association.

June 29, 1912.

1. McArthur, L. L. *An Aseptic Surgical Access to the Pituitary Body and its Neighborhood.*
2. Binnie, J. F. *Symptoms of Colonic Intoxication.*
3. Plummer, H. S. *Diffuse Dilatation of the Esophagus, without Anatomic Stenosis (Cardiospasm): A Report of Ninety-One Cases.*
4. Weisenburg, T. H. *Nervous Symptoms Following Sunstroke.*
5. Clock, R. O. *Intestinal Implantation of the Bacillus Lactis Bulgaricus in Certain Intestinal Conditions of Infants, with Report of Cases.*
6. Orton, G. L. *The Procreative Regulation of Defectives and Delinquents.*
7. Peter, W. W. *Some Health Problems of Changing China.*

8. ZEISLER, J. *Some Uncommon and Often Unrecognized Forms of Toxic Dermatitis.*
9. SULLIVAN, A. G. *Reconstruction of the Bile-Ducts.*
10. LITTLE, J. M. *Beriberi Caused by Fine White Flour.*
11. BROWN, E. J. *Therapeutic Literature.*
12. *EISENBERG, A. A. *The Use of Hexamethylenamin in the Affections of the Upper Respiratory Tract.*

12. Eisenberg reports the results of his experience with the use of hexamethylenamin in 43 cases of upper respiratory infection, comprising 22 cases of acute bronchitis, 12 of acute rhinitis, 8 of influenza and one of chronic frontal sinusitis. His conclusions are as follows:

(1) Hexamethylenamin is a valuable remedy in the treatment of the inflammatory conditions of the upper respiratory tract.

(2) It must be given in doses large enough to secure its full physiologic effects.

(3) No untoward symptoms were observed when it was given in fairly large doses (up to 30 gr. daily).

(4) It seems to prevent possible complications of acute rhinitis, such as bronchitis and sinusitis. [R. M. G.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

JUNE, 1912.

1. DEAVER, J. B. *Surgery of the Bile Ducts.*
2. *CECIL, R. L., AND BULKLEY, K. *A Critical Study of Oxyuris and Trichocephalus Appendicitis.*
3. *MUSSER, J. H. *Problems in the Treatment of Exophthalmic Goitre.*
4. *DAVIS, E. P. *Thyroid Disease Complicating Pregnancy and Parturition.*
5. *FOSTER, N. B. *Functional Tests for Hepatic Cirrhosis.*
6. MCCLANNAHAN, H. M. *The Management of Asthma in Children.*
7. ASHHURST, A. P. C., AND JOHN, R. L. *The Treatment of Fractures of the Forearm with Notes of the End Results of Fifty-Two Cases Treated without Operation.*
8. *EUSTIS, A. *Further Evidence in Support of the Toxic Pathogenesis of Bronchial Asthma, Based Upon Experimental Research.*
9. CORLETT, W. T., AND COLE, H. N. *A Recurrent Disease of the Skin Associated with High Winds and Cold Weather for Which the Name Dermatitis Hiemalis has been Proposed.*
10. *BEER, E. *Experimental Study of the Effects of Ureteral Obstruction on Kidney Function and Structure.*
11. AUSTIN, J. H., AND PIERSOL, G. M. *The Use of the Crehore Micrograph in the Clinical and Experimental Study of Cardiovascular Physiology.*

2. Cecil and Bulkley summarize the literature of appendicitis due to parasites such as the oxyuris and the trichocephalus, and analyze both the reported cases and cases of their own. Of a series of 129 cases of appendicitis in children, parasites were present in 15%. The pathological process in the cases with parasites was chiefly catarrhal rather than suppurative, and the clinical picture was dominated by subjective symptoms rather than by objective signs, rigidity being slight in proportion to the pain and tenderness.

3. Musser's article is a protest against the too ready resort to surgery in cases of goitre, calling attention from his own experience to the fact stated by Charles Mayo that 90% of all goitres can be so improved by medical treatment as to make operation unnecessary. He maintains that surgery should not be resorted to except for relapse or failure to improve after prolonged and careful medical treatment.

4. Davis reviews a large number of reports of cases in which thyroid disease has complicated pregnancy, and adds four original cases. He concludes that the condition of the thyroid gland should receive attention in all cases of pregnancy, especially by means of the study of the nitrogen partition of the urine. In cases where there is deficient thyroid secretion, much can be accomplished by the administration of thyroid extract through the period of pregnancy. In cases with increased secretion of the thyroid material, rest, milk diet and the application of ice over the gland may be employed until the child becomes viable. When interference becomes necessary, Cæsarean section is preferable to the more exhausting process of induction of labor.

5. Foster discusses the various tests that have been suggested as indices of the functional capacity of the liver, and reports his impressions from the study of cases with cirrhosis and of experimental animals. Unfortunately, however, he is forced to the conclusion that none of the present tests are of clinical value, nor is there at present any likelihood that any adequate test of hepatic function can be devised.

8. Eustis has investigated the possibility that the cause of bronchial asthma is a form of intestinal toxemia. He has studied particularly the action of betamidazolylethylamin, an amin isolated and described by Barger and Dale. Injection of this substance in animals caused fatal bronchial spasm. Further evidence connecting bronchial asthma with intoxication by this substance is still incomplete, but a further report is promised.

10. Beer reports experimental results bearing upon the effects of ureteral obstruction. His chief conclusions are the following. Infection of a non-stenosed ureter may lead to a hydronephrosis, but rarely to abscess formation. Aseptic ligature of ureter leads regularly to a primary hydro-ureter and hydronephrosis, but at about three weeks an atrophy and shrinkage of the hydronephrotic sac begins and continues so that after three to four months the kidney is represented by a small fibrous mass, provided infection is not present, in which case a huge hydronephrotic sac results. After three weeks exclusion sufficient parenchyma persists to warrant an attempt at secondary implantation of the ureter into the bladder. [F. W. P.]

ARCHIVES OF INTERNAL MEDICINE.

JUNE, 1912.

1. GRUNER, O. C., SCRINGER, F. A. C., AND FOSTER, L. S. *A Clinical and Histological Study of a Case of Paget's Disease of the Bones with Multiple Sarcoma Formation.*
2. *BARRINGER, T. B., AND WARREN, M. *The Prognosis of Albuminuria with or without Casts.*
3. *BAUMANN, L., AND HOWARD, C. P. *Metabolism of Scurvy in an Adult.*
4. WINTERNITZ, M. C. *Tuberculosis of the Spleen.*
5. *BREM, W. V. *Studies of Malaria in Panama. IV. Relation of Malaria to Other Diseases, with Especial Reference to Dysentery.*
6. *STEWART, G. N. *Studies on the Circulation in Man. V. Effect on the Blood Flow in the Hand of Applying Different Pressures to the Upper Arm; a Contribution to the Clinical Measurement of Blood-Pressure.*
7. SMITHIES, F. *A Method for the Microscopic Examination of Gastric Extracts and of Feces.*

2. Barringer and Warren present a very valuable paper on the important subject of albuminuria in relation to life insurance. The material for study consisted of 396 men, residents of New York City, who were insured in 1900–01 and who were normal at that time except for the presence in the urine of serum albumin with or without casts. These men were divided into three groups: The first, numbering 115, showed albuminuria without casts; the second, numbering 203, albuminuria with a few hyalin casts; the third, numbering 53, albuminuria and a few granular casts. In 1911, 70 of the original 396 men were examined with especial reference to the heart, blood-vessels and kidneys. Twenty of these 70 belonged to Group I; none of them shows interstitial nephritis after the ten years, the urine of 12 is entirely negative, and that of 8 still shows albumin without casts. Thirty men examined after ten years belonged in Group II; of these one now has interstitial nephritis and 2 are doubtful cases, 18 are apparently normal as regards heart and kidneys, 9 show the same condition of the urine that they did in 1900. The other 20 men re-examined after ten years belonged in Group III; of these 2 now have interstitial nephritis and in 5 the diagnosis is doubtful. Eight have normal hearts and kidneys. Of the original 396, 25 have died — a high mortality. Three of the deaths were from nephritis and 8 from pulmonary tuberculosis. The writers conclude that renal albuminuria without casts is most frequently found in young adults. It is exceptional

for it to be a symptom of incipient nephritis, but is rather to be regarded as an evidence of a generally lowered resistance which predisposes to tuberculous infection. The mortality among these people is higher than among normal subjects. Cases of albuminuria with a few hyalin casts have no particular age-incidence. The mortality in this group is also above normal. People with albuminuria and granular casts show a much higher mortality than normal people and a much greater tendency to renal and arterial disease than either of the preceding groups. Whatever the urinary findings, age is a factor in the prognosis of albuminuria, young people having the most favorable outlook as regards the possibility of an ultimate nephritis.

3. Baumann and Howard made an exhaustive clinical study of metabolism in a case of scurvy. They found that the loss of the various food constituents through the feces was less when the fruit juice was added to the diet. The total sulphur metabolism was abnormal throughout. Chlorine and sodium were retained during the fruit-juice period, but excreted in excess of the intake during the preliminary period. More potassium, calcium and magnesium were retained during the fruit-juice period.

5. Brem reports further studies of malaria in Panama, concerning himself this time with the relation of malaria to other diseases, especially dysentery. He concludes that the so-called choleraic or dysenteric types of pernicious malarial fever do not occur in Panama. In a study of 4,691 malarial infections it was found that the number of cases complicated by acute dysentery, amebic dysentery, typhoid fever, pneumonia, pulmonary tuberculosis and chronic nephritis was in each instance one per cent or less. Malarial infection appears to bear no etiologic relationship to acute dysentery or any of the above diseases. All the above diseases were complicated by a considerable percentage of malarial infections, the order of frequency being amebic dysentery, acute dysentery, chronic nephritis, typhoid fever, pulmonary tuberculosis, pneumonia. The coincident occurrence of malaria with nephritis and tuberculosis is probably due to chance, while the synchronous occurrence of malaria with acute dysentery, amebic dysentery, typhoid fever and pneumonia is chiefly due to a lighting up of latent malaria by the other diseases. The two forms of dysentery have about equal power to determine an exacerbation of latent malaria; the influence of typhoid fever and pneumonia is only about one third or one fourth as great.

6. Stewart reports further studies on the circulation in man, devoting his attention this time to the effect on the blood flow in the hand of applying different pressures to the upper arm. He concludes that a pressure equal to the systolic pressure applied to the upper arm by a broad cuff causes complete cessation of the blood flow in the hand. Since the pressure in the veins distal to the constricting armlet eventually becomes equal to the systolic arterial pressure, the lumen of the arteries under the cuff must be actually obliterated. When the artificial pressure about the upper arm is reduced from the systolic arterial pressure, the blood flow in the corresponding hand is only slightly increased for a considerable decrement of pressure. The pressure in the armlet must fall somewhat below the diastolic pressure before any marked increase in the flow through the hand occurs. The first decrements of pressure below this are accompanied by a much greater increase in the flow through the hand than further equal decrements. A handicap of half the diastolic pressure causes only a relatively small diminution in the flow through the hand. [L. D. C.]

Wiener Klinische Wochenschrift. No. 25.

June 20, 1912.

1. Hochenegg. *Total Intestinal Exclusion.*
2. *Foerster, O. *The Indications and Results of Resection of the Posterior Spinal Cord Roots.*
3. Pulawski, A. *The Question of the Surgical Treatment of Baseдow's Disease.*
4. Gielczynski, V. *A Case of Pleural, Mediastinal and Subcutaneous Emphysema in the Course of Bronchopneumonia in an Infant.*
5. *Müller, J. *Further Observations on Melubrin and its Therapeutic Action.*
6. *Jellinek, S. *Organization and Performance of First Aid in Electric Accidents.*

2. Foerster, of Breslau, considers that the three indications for the resection of posterior nerve roots are severe pain, the gastric and intestinal crises of tabes and spastic paralyses.

5. Melubrin is the commercial name given to sodium phenyldimethylpyrazolonamidomethane sulphate, one of a series of antipyrin derivatives. Müller, of Halle, describes favorably his experience with its use as an analgesic and antipyretic.

6. Jellinek, of Vienna, describes elaborately the procedures to be employed in the treatment of persons injured by electric currents. [R. M. G.]

Archiv für Klinische Chirurgie.

Vol. 98. Part 2.

13. *Ehler, F. *Radical Operations with Muscle-Plastics for Hernia.*
14. von Cackovic, M. *Gastric Ulcer in Childhood and its Effects.*
15. Bogoljuboff, W. L. *Formation of an Artificial Stricture of the Intestine by the Autoplastic Method.*
16. Schulz, F. C. *"Slipping Hernia" and Excessively Large Inguinal Hernia.*
17. Felten, R., and Stoltzenberg, F. *The Operative Treatment of Injuries of the Lung.*
18. Hayashi, K., and Matsuoka, M. *Fracture of the Thigh during Birth.*
19. *Hammesfahr, A. *Resection or Gastro-Enterostomy in Gastric Ulcer not at the Pylorus?*
20. Gaardlund, W. *A Case of Intussusception with a Meckel's Diverticulum at the Summit, and some Remarks upon the Operative Treatment of Intussusception.*
21. D'Agata, J. *Experimental Work on the Surgery and Physiopathology of the Pericardium.*
22. Simin, A. *Absorption from the Peritoneum.*
23. von Frisch, O. *Deformities due to Carrying Burdens.*
24. Pikin, T. M. *Intra-abdominal Herniæ.*
25. Noguchi, Y. *The Ferment Diagnosis of Pancreatic Disease.*
26. Kehr, H. *The Abdominal Incision in Gallstone Operations.*

13. Ehler reviews the work which has been done on radical cure of hernia, and the operations proposed therefor. He then describes an operation of his own to be used in recurrent or very large inguinal herniæ, and cites 15 cases operated upon by this method without a relapse. The technic is briefly as follows: A flap of muscle measuring 7–8 cm. in length by 5 in width is cut from the transversalis and internal oblique just above the conjoined tendon. This flap is attached externally, freed internally, and on its inner edge is left a strip of sheath of rectus. The flap is swung down so that its inner edge may be fastened to spine of pubes and Poupart's ligament, thus forming a bridge under which spermatic cord may pass. The lower edge is then sutured to Poupart's ligament, and the upper edge to sheath of rectus at the bottom, and to cut edge of transversalis farther up. Thus the defect made by removing the flap is closed, and a solid muscular layer is spread out over the inguinal canal. Over this the aponeurosis of external oblique is sutured as in the Bassini operation.

19. Hammesfahr, in discussing the relative merits of gastro-enterostomy and gastric resection in case of ulcer not situated at the pylorus, decides in favor of the former procedure, chiefly because of its value in preventing relapse. This it does by securing rapid emptying of the stomach and a certain amount of neutralization of HCl by the duodenal contents. In order to secure this result permanently, the pylorus must be closed, and this Hammesfahr accomplishes by making a critical incision through anterior gastric wall just inside pylorus, carrying it through mucosa of posterior wall. The cut edges of mucosa are then sutured, the muscular coats being included. A layer of sutures through the serosa completes the operation. [G. G. S.]

Revue de Chirurgie.

June, 1912.

1. *Schwartz, A., and Kiss, G. *Exposure of the Radial Nerve in the Arm.*

2. *SOUBEYRAN AND DESMONTS. *Substernal Adeno-Phlegmon.*
3. *TOUPET, R. *Surgery of the Hypophysis.*
4. *BACULESCU, M. *Statistic Study of Extra-Uterine Pregnancy.*

1. In an anatomic study, illustrated by excellent diagrams, the authors describe the classic method and compare it with their own operative technic for exposure of the musculospiral nerve in the upper arm.

2. The authors describe substernal adeno-phlegmon as a pathologic entity, and collect from the literature eight cases, to which they add one of their personal observations.

3. Toupet presents an elaborate treatise on surgery of the hypophysis, illustrated by 56 cases collected from the literature, and by a bibliography of 25 titles.

4. Baculescu presents a careful statistic study of extra-uterine pregnancy, illustrated by 33 selected cases. [R. M. G.]

BULLETINO DELLE SCIENZE MEDICHE.

FEBRUARY, 1912.

1. RUATA, G. O. *The Action of Lysol on the Most Common Pathogenic Germs.*
2. *CALCATERRA, W. *Dental Caries in the Alumni of the Elementary Schools of Bologna.*

2. Calcaterra presents an extensive study of dental caries among public school children in Bologna, with a bibliography of twenty-two titles on this important subject. [R. M. G.]

MARCH, 1912.

1. LUSSANA, F. *Action of the Amino Acids on the Spinal Reflexes in the Tortoise.* (Preliminary note.)
2. *LUSSANA, F. *A Question with Regard to Preventive Anti-Diphtheritic Sero-Therapy.*
3. FORNI, G. *Experimental Researches on Cross-Anastomoses of the Vagus and the Sympathetic in the Rabbit.* (Preliminary note.)
4. GHILLINI, C. *Epiphyseal Separation.*
5. PUNTONI, V. *Observations on the Cholera Epidemic Occurring in Lower Polesine in the Summer of 1911.*

This issue is published as a *Festschrift* to Dr. Auguste Murri on the completion of his twenty-fifth year as professor of clinical medicine at the University of Bologna.

2. The question which Lussana propounds is, whether anti-diphtheritic serum, inoculated in an uninfected individual, might not act as an antigen, and provoke the formation of antibodies, not curative, but anti-antitoxic; and whether, therefore, by prophylactic inoculations (especially if repeated at frequent intervals), one might not only avoid the anaphylaxis of serum sickness, but also promote that of diphtheria, with the consequent danger of rendering fatal some cases of diphtheria which would otherwise have been light, if it had not been for the preventive inoculation. This query is important, for it suggests a possible flow in all forms of preventive inoculation. As a matter of experience, however, it seems that the danger feared by the author is theoretic rather than actual. [R. M. G.]

APRIL, 1912.

1. POGGI, A. *Memorial of Professor Alexander Codivilla.*
2. *DE ANGELIS, G. Z. *Anaërobes and Fetido-Gasseous Suppurations.*

2. De Angelis presents an elaborate experimental study of anaërobes and of their pathogenic properties in the production of suppurative infections, with an extensive bibliography. [R. M. G.]

MAY, 1912.

1. GUNDI, A. *Giovanni Pascoli.*
2. BASSI, C. *Some Cases of Dynamic Ileus.*
3. *SANTONOCETO, V. *Phytin in Physiologic Organic Nitrogenous Metabolism.*
4. *DI GREGORIO, G. *Phytin in Physiologic Organic Phosphatic Metabolism.*
5. LUCIANI, L. *Angelo Camillo De Meis.*

3 and 4. These two complementary articles consider the rôle of phytin in nitrogenous and phosphatic metabolism. Phytin is an organic preparation of phosphorus, consisting of phytinic acid, isolated from plants, combined with calcium and magnesium. The result is a white powder, rather dense, slowly but completely soluble in two or three volumes of distilled water. The authors conclude that its administration delays cellular disintegration, increases the absorption of nitrogen and spares the phosphorus of the organism. [R. M. G.]

IL POLICLINICO.

JUNE, 1912.

MEDICAL SECTION.

1. ZANELLI, C. F. *Observations of the Blood in Experimental Cholemia.*
2. *D'ANTONA, S. *A Case of Acute Verrucous Aortitis.*
3. CALCATERRA, E., AND CONNIO, A. *Physico-Chemical Values of Body Fluids in Cholera.*
4. CANTIERI, C. *The Milk Test for Micrococcus Melitensis.*

2. D'Antona reports a case of acute verrucous aortitis and goes at great length into the literature, etiology and pathogenesis of this condition. He considers his case important chiefly because it shows that inflammatory processes of this kind in the aorta and in the endocardium are independent of each other, while having an identical pathogenesis. Acute vegetative endocarditis and acute verrucous endo-ortitis are two separate pathological entities, although it is merely a case of two loci minoris resistentiæ for the infecting micro-organism. [L. D. C.]

Correspondence.

EARL PERCY AND THE SMITHSONIAN INSTITUTION.

PROVIDENCE, R. I., June 24, 1912.

Mr. Editor: I have been greatly interested in reading the editorial on "British Medical Baronets" which appeared in your issue of June 20.

May I remind your readers that the United States has an interesting connection with the Percy family through two of its members, (1) Hugh Percy, second Duke of Northumberland, and the eldest son of Hugh Smithson Percy, the first duke, who was a colonel in the Fifth Fusiliers; and (2) James Smithson, founder of the Smithsonian Institution at Washington?

The duke, then known as Lord Percy, did not approve the American policy of George III, but he nevertheless embarked for Boston in the spring of 1774 and was placed in command of the camp there. On April 19, 1775, after the battle of Lexington, he marched out of Boston in command of a brigade consisting of the Welsh Fusiliers and four other regiments, and with their aid he covered the retreat to Charlestown of the army. In March he made an attack on Dorchester Heights, which was ultimately abandoned and Boston evacuated. On March 26, 1776, he became general in America, and attained the rank of lieutenant-general in the army the 29th of August, 1777. He had many disputes with Howe, who finally obtained his recall, and on the 18th of June, 1777, Walpole writes: "Lord Percy has come home disgusted with Howe."

Still more, however, Americans are interested in James Smithson, whose name will be perpetuated for all time in one of the great foundations of this country, namely, the Smithsonian Institution, and who declares himself in his will, made Oct. 23, 1826, "son to Hugh, first Duke of Northumberland, and Elizabeth, heiress of the Hungerfords of Studley and niece to Charles, the proud Duke of Somerset, now residing in Bentinck Street, Cavendish Square." In the case of the death of his nephew without issue, James Smithson bequeathed the whole of his property, subject to an annuity of £100 to John Fitall, "to the United States of America, to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men." By that great bequest James Smithson, half-brother of Lord Percy who fought in the Revolution, laid the United States under perpetual obligation, while thus

was realized the ambition which led him to adopt a course that should give imperishable distinction to his name "when," to quote his own striking words, "the titles of Percy and Northumberland are extinct."

James Smithson's mother was Elizabeth Hungerford Keate Macie, at the time of his birth, in 1765, the widow of James Macie, a country gentleman of an old family resident at Weston, near Bath. She was of the Hungerfords of Studley, a great-grandniece of Charles, Duke of Somerset, through whom she was lineally descended from Henry VII, and was cousin of that Elizabeth Percy who married Hugh Smithson who later became Duke of Northumberland and by act of Parliament took the name of Percy. She inherited the property of the Hungerfords of Studley in 1766, which inheritance indicates the probable source of a considerable portion of the Smithsonian bequest, though the property disposed of by his will is believed to have been received chiefly from Col. Henry Louis Dickinson, a son of his mother by a former marriage. He is known to have received a legacy of £3,000 from Dorothy Percy, his half-sister on his father's side. Unless through this legacy, there is no indication, according to a former secretary of the Smithsonian Institution, that any part whatever of the Smithsonian bequest was derived from the Northumberland family. For a long time Americans were at a loss to determine the motive which led Mr. Smithson to select the United States as the trustee of his philanthropic views, but it is evident from a letter which came to light in 1884, which the testator wrote from Paris, under date May 9, 1792, to his friend, Davies Gilbert, of the Royal Society, that at that time he was imbued with republican notions. That letter is in part as follows:

"Well! things are going on! *Ca ira* is growing the song of England, of Europe, as well as of France. Men of every rank are joining in the chorus. Stupidity and guilt have had a long reign, and it begins indeed to be time for justice and common sense to have their turn. . . . Every Englishman I converse with, almost every Englishman I see or hear of, appears to be of the democratic party. Mr. Davis, high sheriff for Dorsetshire, left this town today and takes with him, it seems, a quantity of tricolor ribbon to deck his men with the French national cockades, and I do not think this example unworthy of imitation by those whose principles lead them to consider with indifference and contempt the frowns of the court party, to whom, doubtless, the mixture of red, white and blue is an object of horror. . . . Mr. Louis Bourbon is still at Paris, and the office of king is not yet abolished, but they daily feel the inutility, or rather, great inconvenience, of continuing it, and its duration will probably not be long. May other nations, at the time of their reforms, be wise enough to cast off at first the contemptible incumbrance. I consider a nation with a king as a man who takes a lion as a guard-dog; if he knocks out his teeth he renders him useless, while if he leaves the lion his teeth the lion eats him.

"I remain, dear sir,

"Yours very sincerely,

"James L. Macie."

[Smithsonian Report, 1894.]

It is fair to assume that one whose character had been ennobled to great scientific attainments might not have expressed these views, certainly not in such vehement language, had he written on the same subject a few years later. At that time he was but twenty-seven years of age. It is quite likely, however, that the circumstances of his birth, which excluded him from the titular honors which his father enjoyed, embittered his life. He was educated at Oxford, where he went under the name of James Lewis Macie until a few years after he had left the university. It was only under circumstances which showed that he had no right to that name that he later in life had that of Smithson, to which he had every moral right, confirmed to him by law. Apparently he had no fixed home, for he lived in lodgings when in London, and occasionally stayed a year or two at a time on the continent in such cities as Paris, Berlin, Florence and Genoa, in which last he died.

It is probably within the truth to say that no institution in the United States to-day is doing more than the Smithsonian Institution for "the increase and diffusion of knowledge among men." Small wonder, then, that the name "Smithson" is revered by the citizens of the republic. And surely no man, Englishman or American, thinks less of the house of Percy for the good, honest trading blood of Hugh Smithson, the Yorkshire haberdasher, whose industry and thrift brought him a baronetcy and did so much for his "heirs male lawfully begotten of his body." The genealogy of the house of Northumberland referred to in your article is so well known that it seems impossible to believe that there should ever have been any attempt to conceal facts of history that are not discreditable, or that the noble family should have regarded its prestige as impaired by a wholesome infusion of commoner's blood. It was evidently a first-class strain, whose quality has made itself felt in the lives and achievements of a multitude of men who have deserved well of their country.

"Noble his blood as the currents that met
In the veins of the noblest Plantagenet"

might still have been said of those who came after Hugh Smithson.

Perhaps, after all, it would not be a bad idea if we in the United States had some worthy plan of recognizing and rewarding conspicuous merit by titular distinction equal in attractiveness to that of which Englishmen of every social rank and political complexion seem so thoroughly to approve. In that case our own heiresses, sprung largely from the loins of successful traders, might stay at home instead of enriching by their blood and treasure titled families of Europe, some of which have become impoverished in both these attributes. Yet it were well for all of us to ponder the wisdom of a three-line preface to a book entitled, "Ancestry of Thirty-three Rhode Islanders," by John Osborne Austin, published twenty two years ago: "A proper pride in an honest descent is pardonable; but no one will magnify the merits of a particular line of ancestors when he sees that it has had to pay tribute to scores of families within the limits of but a few generations." And with that sparkling gem of philosophy this too long letter may now end.

Yours faithfully,

G. A. Blumer, M.D.

ANTIVIVISECTION AND CHARACTER.

92, Victoria Street,
Westminster, S. W.
June 18, 1912.

Mr. Editor: Your issues of the 2d of May, and the 9th of May have been sent to me from America, and I notice that Dr. W. W. Keen is distressed at the deteriorating influence that my anti-vivisection principles have had upon my character.

He seems quite shocked that I should admit that I constantly break the law and exceed the speed limit of twenty miles an hour in my motor car.

There must be a quarter of a million motorists who have suffered a moral deterioration similar to my own, and who daily display this unfortunate symptom of moral deterioration. I can only hope that in every case it is their anti-vivisection views that have forced them to adopt this cynical indifference to the speed limit regulations of the Motor Act.

Dr. Keen is good enough to quote my remarks to the Royal Commission on the meaning and derivation of the word anesthesia thus:

"What does anesthetized mean? It means without feeling. You cannot be slightly without feeling — you either feel pain or you do not"; and he seems to imagine that his assertion that a patient of his whom he anesthetized "was never conscious of the slightest pain" in some way traverses my statement! From which I must conclude that the support of vivisection has deteriorated his mental powers even more than anti-vivisection has deteriorated my morals.

In his article in your issue of the 9th of May, Dr. Keen quotes a snippet from my evidence, which, if read with the context, affords no ground whatever for opprobrious re-

flections, and then dismisses me thus: "Comment upon Mr. Coleridge's testimony is superfluous."

So it is, if you read it all, but not in the sense implied by Dr. Keen. But Philadelphia is a long way from London, and the task of deflating this magnificent person from my remote seclusion is almost beyond me.

Your obedient servant,

STEPHEN COLERIDGE.

THE EXPERIMENTAL METHOD IN THE COURSE IN PATHOLOGY.

Mr. Editor: In an abstract of an address given before the Harvard Medical Alumni Association, describing the application of the experimental method to the course in pathology, published in this JOURNAL, June 13, 1912, the following statement is made: "The course was given to the entire second class as an integral part of their formal training in pathology, this being the first time so far as the writer knows that such an extensive plan for the employment of the experimental method in the teaching of this subject has been attempted." The attention of the writer has been called to the fact that this statement might be interpreted to mean that no other similar courses have been given. The nature of the abstract made further elaboration of the statement seem inadvisable, inasmuch as a more complete account of the course is in preparation. In the interval which must elapse before publication it seems only fair, and is a great privilege, to make note of the writer's great indebtedness to the courses of MacCallum (Johns Hopkins Hospital Bulletin, August, 1906, and subsequent papers) and of Pearce (Johns Hopkins Hospital Bulletin, November, 1911). The novelty of the writer's course consists in the combination of these two most admirable methods, so that students actually perform the experiments and see the results. The list of experiments very closely follows the outline laid down by Pearce and his work has been a constant inspiration in the further elaboration of the method.

Very truly yours,

HOWARD T. KARSNER.

FATALITY FROM PERISTALTIC HORMON.

PARIS, JUNE 18, 1912.

Mr. Editor: Since my recent letter, in which reference was made to three serious cases of collapsus following intravenous injections of peristaltic hormon, three further similar accidents have been published in the German medical press, one of them having resulted in death.

In two of these instances, young men of twenty-one and twenty-three, trouble began during the injection itself, which was at once interrupted and stimulants applied. In the third, a woman of forty-three, the collapse occurred immediately after the injection.

This is the first fatal issue that has been reported, but however serious the condition of the patients with whom this treatment is indicated, the relatively high percentage of risk, — six serious accidents among at the best a very few hundred cases, — seems sufficient to condemn the method as one that, — to say the least, — has not been sufficiently worked out. And it is not unlikely that other mishaps still have taken place without reaching the columns of the papers.

"S."

APPOINTMENTS.

JEROME D. GREENE, General Manager of the Rockefeller Institute for Medical Research, has resigned that position to enter the office of John D. Rockefeller, where he will be a member of the staff in charge of Mr. Rockefeller's business and philanthropic interests. Mr. Greene will continue as a trustee his connection with the Rockefeller Institute for Medical Research.

HENRY JAMES, JR., of Cambridge, Mass., has been appointed to succeed Mr. Greene in the management of the Rockefeller Institute. He is a graduate of Harvard College in the class of 1899, and of the Harvard Law School in 1904, since when he has been engaged in the practice of law in Boston. He will begin his service at the Rockefeller Institute in the autumn.

RECENT DEATHS.

DR. GEORGE WASHINGTON TOBIAS, of New York, died on July 4, at the age of seventy-one years. He was graduated from Bellevue Hospital Medical College in 1877, and had spent all his professional life in New York.

DR. GEORGE W. HENRY, a prominent physician of Camden, N. J., died on July 2. He was a graduate of the Philadelphia College of Pharmacy and of the Jefferson Medical College, Philadelphia, in 1885. Dr. Henry had served two terms in the New Jersey Legislature and also for one term as coroner of Camden County.

AMONG those who lost their lives in the disastrous collision on the Delaware, Lackawanna and Western Railroad near Corning, N. Y., on July 4, was DR. ELLIS VANDERSLISE IVAY, an interne of Bellevue Hospital, New York. His injuries were about the head and he was not instantly killed, but died within an hour after his removal to the Corning Hospital. Dr. Ivay was a graduate of the medical department of the University of Pennsylvania, and his home was at Suffolk, Va. With him on the train, and like him off on a holiday trip, was DR. GEORGE LOTTERHOSS, of Crystal Springs, Miss., a classmate at the University of Pennsylvania and also an interne of Bellevue Hospital; but, fortunately, the injuries of the latter were slight.

DR. WILLIAM GUY RICHARDS, retired, who was for a number of years chief of the medical staff of the New York Mutual Life Insurance Company, died suddenly at his home in Tarrytown, on the Hudson, on June 30, in the sixty-first year of his age. He was born at Jamaica Plain, Mass., but had lived in New York State for many years. He is survived by his widow and by one daughter.

DR. HENRY EDWIN SPALDING, who died on July 4, in Hingham, Mass., was born in Lyndeboro, N. H., on Sept. 24, 1843. He served as a volunteer throughout the Civil War, and subsequently studied at the Harvard Medical School and in Vienna. He received the degree of M.D. from the New York Homeopathic Medical College in 1866. He settled in the practise of his profession at Boston, and was for twenty years attending physician and obstetrician at the Massachusetts Homeopathic Hospital in this city, and rectal surgeon at the Boston Homeopathic Dispensary. He was a member of the American Institute of Homeopathy, a member and former president of the Massachusetts Homeopathic Medical Society, a member of the Massachusetts Surgical and Gynecological Society and of the Boston Homeopathic Medical Society.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 29, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	5	1
Chicago	563	157	Waltham	7	2
Philadelphia	—	—	Brookline	8	1
St. Louis	—	—	Chicopee	6	5
Baltimore	—	—	Gloucester	6	—
Cleveland	—	—	Medford	2	—
Buffalo	—	—	North Adams	6	3
Pittsburg	—	—	Northampton	7	2
Cincinnati	—	—	Beverly	4	—
Milwaukee	—	—	Revere	0	—
Washington	—	—	Leominster	2	—
Providence	—	—	Attleboro	1	1
Boston	165	29	Westfield	6	3
Worcester	35	9	Peabody	—	—
Fall River	27	13	Melrose	5	—
Lowell	36	13	Woburn	5	—
Cambridge	22	4	Newburyport	2	—
New Bedford	23	11	Gardner	8	—
Lynn	12	2	Marlboro	1	0
Springfield	29	6	Clinton	3	1
Lawrence	19	8	Milford	—	—
Somerville	22	3	Adams	3	1
Holyoke	12	6	Framingham	—	—
Brockton	10	2	Weymouth	—	—
Malden	11	3	Watertown	5	1
Haverhill	6	3	Southbridge	1	—
Salem	14	—	Plymouth	1	—
Newton	11	2	Webster	4	—
Fitchburg	7	2	Methuen	—	—
Taunton	11	1	Wakefield	—	—
Everett	6	2	Arlington	2	1
Quincy	—	—	Greenfield	2	—
Chelsea	13	3	Winthrop	1	—

Address.

THE GENERAL PRACTITIONER: AN IDEALIZATION.*

BY FRANK SHERMAN MEARA, M.D., PH.D., NEW YORK,
Professor of Therapeutics in the Cornell University Medical School.

In a recent address I had occasion to speak of the general practitioner incidentally; I wish to-day to make him the subject of my discourse. In the address referred to I mentioned an incident of a visit to Edinburgh a few years after the Boer war. "The coachman who drove our party to the castle pointed with his whip to a noble shaft and said, 'Let me show you this monument; it is the first of the kind ever erected in this country, for it has inscribed upon it the names of the private soldiers who fell in Africa, as well as those of the officers.'"

The officers of our army are the great scientists, educators, clinicians and specialists, but the general practitioners I conceive to be the men in the ranks, and to them I dedicate this thesis. In its personnel the country practitioner is predominant, and him I have defined as the "yeoman" of our profession, its strength, its substance, the ultimate criterion of its actual achievement. "He is virile by virtue of his environment; he is self-reliant from his isolation; he is resourceful from necessity; he exalts common sense above fine theories; he deals with all conditions and preserves a breadth of vision, grasps general principles, and, failing the finer technical knowledge of the specialist, is spared the distortion of his perspective. He knows his patient as a man and a friend and not as a commodity, and he it is who exemplifies best and most consistently that unselfish regard for others that glorifies medicine." This is the substance of my thesis.

I have termed my talk "an idealization." An ideal, while not attainable, still has a concrete value in its application; it is the $\sqrt{-2}$, which, introduced into an equation, alone effects its solution, though itself insoluble. A goal aimed at at least determines the direction of an effort; and so, keenly appreciative that much I have to urge must meet with modifications, qualifications and compromises, I trust the ideal may still shine undimmed upon the horizon of our aspirations.

The practitioner of medicine is first of all a man, endowed with mental attributes common to man, possessed of potentialities capable of expression and effectiveness in proportion to the husbandry exercised upon them.

His technical education is the link that binds this man with another man he calls his patient, and while the application of his technical knowledge is obvious, the effect of man on man in this relationship is too often overlooked, and this I wish to exalt.

We are to-day in a period of mental activity, an activity which, guided by the canons of inductive and deductive reasoning, and subjected to the criteria demanded by science, is resulting in an acquisition of knowledge that has no parallel in history; but, unrestrained by these checks, is a mental unrest.

We are prone to be generous in our interpretation of modern civilization. We conceive the race to be purged of the gross and ridiculous fallacies that guided the conduct of our forefathers and, familiar with the absurdities of our own time, fail to institute a fair comparison with those of the past and fail to appreciate the factors common to them both, credulity and untrained reason. The character of knowledge in the lapse of time has changed, and more facts are more generally known now than two thousand years ago, but the reasoning faculty has not proportionately developed or come into so general possession as is assumed. Credulity, accepted dogma, fanatical adherence to tenets of faith obtain to-day as formerly. The form, not the substance, has changed.

But the mental unrest of to-day, while not lessening credulity, changes its form rapidly. Men seeking the explanation of facts and building on the fallacious principle of *post hoc* or substituting imagination for ascertained fact elaborate theories, cults and schools whose acceptance by the masses depends only on the fiery zeal of the militant apostle of the faith or an atmosphere of mysticism. And yet the institution of sects, cults, schools and faiths is in response to a need felt by man and subserves some purpose for their adherents; that is, they bear some germ of truth, have some basis of verity, an important fact for those who assume the attitude of philosophic criticism or undertake aggressive opposition.

The extraordinary intricacies of the human mechanism and the even more tenuous and elusive threads that form the warp and woof of the human mind lend readily to speculation, and man's superlative interest in these things, which are intimately his or which are he, invites to the practice. While external nature has lost for man the mystery that gave it romance, the body and the mind still exercise sway in the realm of his fancies, and this, too, among a large number who wear the academic seal of educated men.

Moreover, the imperative desire for life and the fear and horror of death, both necessary for the preservation of the race, rob the threatened animal of reason and urge him desperately to grasp at aid however shadowy. All this divorces powerfully man himself from external phenomena and impels to the elaboration of theories and speculations and the formulations of creeds about himself that are so numerous and so kaleidoscopic at the present day.

As a profession concerned in the deviations from the normal of the human body and the human mind, we stand face to face with varied types of formulated effort to meet a need that it is believed we have failed to appreciate or have not adequately met. It is the kernel of truth in the husk of fallacy that perpetuates the whole, and it is the business of the medical profession to

* Address at the Harvard Medical School under the auspices of the Alpha Omega Alpha Society.

discover that kernel and use it legitimately for the purposes of human relief.

This preamble was chosen to emphasize the fact that the proper study of medicine is man; not merely the body of man, but man in the fullest definition of the term, — the body, the mind and the soul; a study of their normal workings; a study of their normal correlations and a study of the impairments of that normal.

It requires some intrepidity to bring an educational problem to Harvard; but where angels stand aloof is still the stamping ground of the other members of the adage, and it is an educational problem that I wish in some measure to discuss, — the educational problem of the general practitioner, who touches more closely the intimate life of the man who appeals to him than does the scholar of medical science or the student of the special branches of medical art.

It must be understood that we are discussing the general practitioner, that is, the man who concerns himself with the art of medicine rather than the science of medicine, and, moreover, that this distinction of the art from the science of medicine is made with the full appreciation that the former is abolutely dependent on the latter; and yet I conceive that the art of medicine connotes much knowledge that is not contained in the medical curriculum and in the cognate subjects, or, again, it is the knowledge of those spheres of man's activities other than those in which his bodily activities are concerned.

The question of what should be the preliminary training of a man whose profession is to be technical is a moot one; and that a man, whose preliminary education has been exclusively or predominatingly in the fields of so-called scientific subjects, may not rise to pre-eminence in his profession, cannot be gainsaid, or that it will not enhance his chances if success is a matter of serious discussion; and what is true of other technical professions may obtain for medicine so far as the purely scientific aspect of medicine is concerned, but the art of medicine, as exercised by the general practitioner, to my mind requires a very different kind of preparation.

There is to-day a tendency on the part of the best medical schools of this country to demand as a requirement for admission to their courses the degree of bachelor of arts, bachelor of philosophy, bachelor of science or their equivalents; a policy, indeed, already adopted by a not inconsiderable number.

The demand is merely for a guarantee that each candidate has had for a certain period of time an intellectual training the results of which were satisfactory to an authorized examining body. By the pursuit of what particular branches of study this training was brought about is not a matter of concern to the medical school, except that there shall be included a few sciences fundamental to or cognate to medicine, such as physics and chemistry or perhaps botany and biology. I should not discuss here, even were I able to do so, what kind of studies are best suited to the training and development of the intellectual processes, and would hold no brief for either the so-called classic education or the so-called scientific education, but feel that certain kinds of minds arrive at the desired goal more speedily and satisfactorily by the one road than by the other, and believe that the choice of courses should be somewhat individualistic.

But it will be perceived that I am speaking here of one sphere of man's mental activities, the intellectual, meaning by that his reasoning powers and his powers of acquisition. As a student of the science of medicine, as an investigator of and contributor to medicine, his powers of observation, verification, induction and deduction must be competent; his appreciation of limitations and possibilities in the elaboration of theories and hypotheses to be encountered must be sane, his judgment well balanced in the choice of lines of conduct to be pursued. For this accumulated and well-ordered facts and a trained power of acquisition is requisite.

But such a scholarship is far from encompassing, nay, far from acquaintance with the realm of human interests, human activities and human needs, far from making its possessor cognizant of what constitutes life, in the highest meaning of the term, to his patients, those who seek his advice because they suffer (*patiere*) and not always physical distress. The human mind knows and reasons, but it also feels.

Here all the emotions, passions, satisfactions, meet and mingle, play and battle.

Here concord, harmony, conciliation of things perceived, constitute beauty and exalt the soul to states of satisfaction that lie out of the province of the purely intellectual and forms the esthetic.

And beyond the beauty of things perceived is the beauty of things done or the beauty of doing, that marshaling of word and deed affecting others and affecting ourselves that we term conduct, whose perfection plumbs the deepest seas of satisfaction and receives the approval of the ego enshrined in our most holy of holies. This is the ethical life of man.

Finally, the human mind gropes, seeks, speculates and philosophizes about the cause of things, enters a field outside of, beyond and above the physical, the metaphysical; ponders on its relation and position in the scheme of things; its dependence on, obligations to, a supernatural power; develops the religious elements in its structure.

All these things enter into the life of man or life of men, mingling in all proportions, now one dominating in one man, now another in another. Nor is the body insensible to the habits of the mind, but psychical and physical correlate their functions more closely than is appreciated; indeed, muscular activities, blood distribution, nerve stimulation, even glandular secretions, keep unconscious pace with the flow of thought; the stiffening pose, the widening eye, the frowning brow, the flushing cheek, the tapping foot, the varied breathing are the more obvious of the bodily activities involuntarily called forth by thoughts and emotions.

The forms and degrees of energy expressed in the daily life of a man of a highly esthetic temperament must be very different from that of a man of contemplative, of philosophic, moods. Body and mind become habituated to each other, and this knowledge by the practioner should determine differences of procedures and differences in environment when in disease the one or the other individual appeals to him for help.

If these things be so, then the successful coping with abnormal conditions in a man necessitates on the part of him who ministers a knowledge of what constitutes the life, that is, the fields or spheres of mental as well as bodily exercise of the individual concerned.

This, in turn, for the practitioner means a wide and varied knowledge, such a training as shall quicken the appreciation and sympathy for him who lives in whatsoever domain of human thought. It means a liberal education, in its most liberal definition.

While a liberal education would seem imperative for the highest exercise of each of the three ancient professions, theology, law and medicine, from the mere standpoint of time, it would seem to exact more from medicine than from either of the other two, first, because the course in the medical school usually demands a year longer, and at the present time is pressing for still another year, that is, five years for its completion. Furthermore, in the best medical schools of our country the student is so impressed with the truth that an interneship in a well-equipped hospital is to be the most valuable period of his medical education that he denies himself the opportunity only under the stress of most insistent circumstances; and yet again, not only the value, but the need, of contact and acquaintance with foreign fields of activity urge a much larger percentage of students from medicine than from any other profession to further sacrifice of time in its accomplishment.

Every year the proportion of students who extend their period of training from four to six years and from six to eight years is increasing, and while these men find themselves suited to take up the lines of leadership in scientific and educational fields, the number going into general practice grows continuously.

If the age of the student graduating from the department of liberal arts be taken as twenty-two years, he begins to practice the art of medicine, begins to gain a livelihood, at twenty-six, twenty-eight or thirty years, depending on the completeness of his studies.

The history of human achievement has shown that these are the very years when initiative, impulse, *élan*, boldness, elasticity, plasticity, adaptibility, imagination and action are at their acme, and while great achievements may follow throughout the many years that ensue, still the overcoming of inertia is a function of youth. Indeed, one often wonders if much of the wisdom, caution and prudence accredited to age is not rather a reaction of fatigue.

We do not believe the medical course should be shortened; we are pleading for a more thorough preliminary training; and yet we do believe that the practitioner should begin his life's work earlier. How shall this be accomplished?

The only solution I can see is that the work shall be more intensive.

Our present system of education adheres largely to the old plan of four years in the secondary school, four years in the college and four years in the professional school. The economy of time must fall on the first two, and especially on the secondary school. I believe the secondary schools of this country can do more intensive work and conform in quality more to the German gymnasia or to the great public schools of England. Twenty-five years ago certain preparatory schools with which I was familiar were actually sending their graduates into the sophomore, classes of Harvard, Yale and Princeton, and even into the junior class of some of the smaller colleges. There was scarce a college at that time that afforded more in quality and quantity of work in the first two years of the curriculum than had already been given at these schools, and to-day there is an overlapping of the work done in school and college that sacrifices much valuable time. The college levels down to the inferior school instead of the schools leveling up to the college. At least, less insistency on restriction to class and more encouragement and opportunity to economize time should be made for the individual student. As in a very few colleges, the amount of work done rather than the time spent, should be the criterion set by the secondary school.

If two years of work in school and college overlap, there arises the question in which the work can be the better done, and if as well done in the school, what need for the college? I should be deemed an iconoclast if I raised my voice against this sacred American institution, distinctly American, but it has long seemed to me that the college has been doing in its early years the work of the secondary school and often less well, and in its latter years the work of the university, often without the equipment of the university.

If the school did its work better and the college was elided, and the university afforded all that the term connotes, without its courses defined in terms of time, then economy of time and quality of work would be enhanced.

But whether the college lives or dies or whether the college or the university affords the elements of a liberal education, a liberal education is what the general practitioner needs, and that, too, without encroachment by the exigencies of the professional school.

The encroachment of the professional school on the college curriculum I believe to be open to serious objection. It has two objects in view; first to economize time; second, to accentuate the importance of studies anticipatory of the professional course. Saving of time is effected by permitting the last year of the college course to become the first year of the professional

curriculum; in other words, it robs the college course of one year and, unfortunately, that very year in which the college most closely approximates the university and that year in which the student is best fitted to appreciate university work. This seems to me to be taking a step backward in our system of liberal education. Emphasis laid upon those studies which contribute directly to the professional work to follow detracts from the humanizing studies, and the importance of the former at this stage in the educational scheme I believe to be exaggerated. I would render unto Cæsar what is Cæsar's; that is, I would give to professional studies the time demanded by the professional school, but I would render unto God, or that scintillation of the divine mind that he has implanted in man, that which is his, — time for developing the attributes of the human soul to the best of my ability. Now the course of liberal arts is one of the instruments designed for such a purpose, and it should not be diverted to baser uses.

An academic education should seek to cultivate all the great fields of mental activity. It should not seek merely to gather crops of facts, but to render the soil so fertile that good seed falling shall spring up abundantly, and to so instruct the husbandman that he shall know what seed to sow.

It has been well said that we gain our education after leaving college, but the tastes, inclinations, appreciations and receptivity is the work of the college.

For the purely intellectual side of our lives it has done its work fairly well; for the esthetic, the ethical, the philosophical and the religious, it is a question.

If these sides of a man's nature are dominant through heredity, through home influences or a fostering environment, the college may afford him some means of enlarging them, but it is often a scant means. More often it is left to his later life, if he ever discovers his deficiencies at all. It is the business of the college to advise him of their value, direct him in his efforts at development, and afford abundant means for its accomplishment. Art, music, drama, ethics, philosophy, — how little they enter into the scheme of the so-called liberal education! Literature, history, sociology, language, — how are they forced to make way to the exact science!

It is with no intention of eliding Hamlet from my "Hamlet" that I pass over so lightly the purely professional preparation of the ideal general practitioner. That he shall have done full justice to the medical curriculum is a "*sine qua non*" to the conception we are defining, but my contention here is for those other qualifications for efficiency, so highly appreciated in him by the patient, but so little insisted upon and so vaguely outlined by those who determine his preparation.

The function of the general practitioner has broadened in these latter days. He finds himself forced more and more to act in the capacity of advisor, in matters, to be sure, not entirely irrelevant to his medical problems, but such as were once brought to priestly or magisterial ear to settle. It is hard for us to-day to appreciate the influence and authority exerted by the cleric, even a generation or two ago. Church ties were not lightly neglected, and the rule of the clergy was paternalistic. Their authority was unquestioned, and a filial obedience and loyalty expected from their flock, but a father's solicitous care and sympathy and eagerness to aid was the return. Expatiation on the change is unnecessary, but that the great solace of an ever-ready, sympathetic ear has been lost to many in the change is true. Yet, the heavy burden of the heart is not better borne alone to-day than before, and when the weakened body throws itself on the physician's support, the heart will have its way. The responsibility at times appalls. We would shrink from the knowledge forced upon us. We are amazed at the implicit confidence placed on the honor, the integrity and the loyalty of our profession. More and more we become the confessor; more and more the advisor; more and more are demands made on our knowledge of the human soul and its needs, on our judgment and sanity, on our firmness and persuasion, on our sympathy and charity. Much knowledge and high standards of duty are needed to meet this demand.

To the vast majority of mankind, to-day, the sphere of their bodily activities sharply defines the sphere of their life's interests. The "*res angustæ domi*" fills the whole horizon of their minds' vision. Primarily an economic need, the work becomes so interwoven with the man that it becomes not merely a means of subsistence, but at last the moving spring of existence. It and its interests become the lines of least resistance, physical and psychical. The tremendous importance to the laboring classes of employment in labor to which they are adapted by trade or custom, the responsibilities for dependents met by this employment, the disintegration of families, often with tragic consequences, the deterioration of the individual concerned following on loss of employment, all demand a sympathetic appreciation of the economic problems faced by this class, with whom the physician is often so situated as to act as sage adviser. Such knowledge makes great demands on a sagacious adjustment of the individual crippled in health to the work which is his only means of livelihood, and takes cognizance of the fact that the very act of working often operates happily on the body adapted through years to its habits.

Amelioration of conditions in a given field of labor, improvement of the domestic economy, so far as the proper and economic choice of food and hygienic instruction can determine, recent socialistic problems, such as the employers' liability act, employees' insurance, old age pension, all are of interest to the physician because they reflect upon the patient and the health and welfare of the patient.

In contradistinction to this class is a great group of men and women whose lives and whose livelihood lie in the domain of intellectual interests. Here the contrast between the patient and

the practitioner, if the practitioner is purely a technician, becomes more accentuated, and to the disadvantage of the latter.

Even if the practitioner were willing to define his professional status as that of a high class artisan or craftsman, the patient will not accept the definition. The more intimate the contact of the physician with the patient, for example, that of the family physician, the more certainly is he forced to take into consideration the intellectual interests of the patient, so inextricably interwoven with his physical well-being.

The highest encomium paid the practitioner is the simple, "He has been our physician for years and he understands us all," an expression which without exception connotes more than an appreciation of physical defects.

The layman has always placed medicine among the Learned professions, and his attitude to the physician has always implied a higher intellectual plane than his purely professional studies would warrant. It is not so much a tribute to him as a demand from him.

History, literature, language, sociology are the only instruments by which this demand is met. The progress of human thought in the past, the motives of human action, the relationship of co-ordinating units in the community and state are all necessary for an appreciaiton of man's attitude, actions and obligations in the present. It was this the course in liberal arts was designed to give and does give, provided its intent is not frustrated by the specious plea of professional necessity.

Perhaps to no class of patients is accord with the medical adviser so necessary as to those of esthetic temperament. They feel intensely; indeed, with them to live is to feel. Dissonance hurts, shocks, wounds. It is ugliness, discord, a jarring or brutal environment that initiates those disturbances that eventuate in psychic and physical ills. No class of people so certainly reflect themselves in their surroundings. To the sympathetic physician a glance has more than half revealed his patient before the latter has trespassed on his field of vision. The book, the print, the painting, the score, the artistic trifle, the color scheme, the taste, the simplicity, has told the tale.

I have already deplored the niggardly consideration granted esthetics in the college curriculum. Barrenness in this field of human life is a misfortune; to glimpse the meaning of this loss renders it a desolation, rises to the height of a tragedy; but I am speaking of it here as a valuable addition to the physician's power to help and to heal. It may be objected that the treatment of an infection, the treatment of a fracture or an operation takes no cognizance of an esthetic temperament, but the observation is superficial, for infections, fractures and operations are but a small share of men's disorders, and even in them the man is too often overlooked in the consideration of the disease.

Scarcely a step in a physician's life is taken that does not lead along the path of duty; that does not entail obligations that conflict with personal desire and personal inclination; that does not demand a rare sense of conduct; that does not present an ethical problem; and these ethical problems concern not only his own conduct, but also the conduct of the patient who seeks his advice.

The biting sarcasm of Shaw but accentuates the fact that material interests and ethical standards conflict more violently and continuously in the practice of medicine than in the case of any other profession; and yet, while as a socialist he takes violent issue with the status of our profession in the social order of to-day, and is a militant protestant against certain facts accepted by the profession, he gives praise to the efforts of the individuals within the profession and deals kindly with the medical characters in his play.

This conflict of interest and duty calls for the highest ethical concepts and, though exceptions are glaring, still I think we do not deserve being termed pharasaical in voicing our satisfaction at the way in which the profession has put these concepts into practice.

Beyond the definition of right in our own line of action lies the obligation to define it for others, whose weakened will, whose distorted vision, whose torturing emotions, whose fears, pride, shame and interests unfit them to determine for themselves, and drive them to the physician for advice. No general practitioner escapes these problems. His closet is full of family skeletons not his own. Tragedy waits upon the issue of his words. A cool appreciation of value, a sanity of judgment, a purity of purpose, is his safeguard and the patient's salvation.

Is it too much to ask, then, that ethics shall enter into his preliminary education, given prominence in proportion to its practical value and not to be left to the hazard of environment or fortuitous example? The study of medicine leads straight to the door of speculative philosophy, to the eternal quest of the "why?" to the primal cause of things. He who fails to rap upon that door has lost the heritage of the ages, lost the heights to which the human soul can soar, lost the depths to which its search can sound, lost its kinship with the infinite and eternal. Why seek to analyze the influence of a soul so enriched in contact with the many whom he calls his patients. Do we visualize this certain goal of the general practitioner in his preparation? De we insist on philosophy as we do chemistry? Do we realize that the medical curriculum makes no place even for normal psychology, and that in the college curriculum psychology is vastly more important to him who anticipates a medical course than is biology?

Ethical conduct connotes justice and right, but there are paths of conduct that lead to higher planes than those on which precise definitions of the rights of *meum* and *tuum* are expressed; planes on whose horizon the *tuum* looms larger than the *meum*, where character finds its perfection in the forgetfulness of self in the consideration of others, in the exercise of the highest function

of the human soul in its relation to others of its kind, altruism.

It is the rare privilege of our profession that its daily walks offer, invite, nay, incite, to unselfish conduct, thrust upon us the opportunity of ennobling self through unselfishness.

That this ideal has been achieved by the general practitioner in instances by no means rare is a matter of common knowledge, and that it often occurs where no culture exists is equally well known, but is the more noticeable because of the contrast. In such men the impulse is natural, imperative, but in most men it requires cultivation and a cultivation that depends on an appreciation of its meaning in character that comes only with education and culture. The medical profession, as a profession, has shown its altruism by its earnest fight in every field that pertains to preventive medicine and public health. Why attempt detail? But it is easier to do good, just as it is easier to do ill, collectively than individually, and the altruistic spirit shuns publicity. It is a higher plane of self-sacrifice that determines the consistent conduct of the individual.

To heal the ailing body is our obligation; to minister to the sick soul, our privilege and duty; the reward comes in the unconscious perfecting of character in the doing, illustrating again that it is more blessed to give than to receive.

But duty may move her unswerving way with a stern face. It was the more tender qualities that endeared the Great Physician to his patients, and that endear his humbler followers to theirs.

Sympathy that feels the cut of grief, the load of sorrow, but that points to consolation; Charity that looks beyond the fact and deed, seeks the moving springs and sets high appraisal on extenuations; Pity, whose office is not to apply the lash of condemnation, but to help and lift; Patience to endure much and long where exactions and complaints are expressions of disorder; Gentleness where tortured mind and body shrink, seeking the firm but tender touch; these were the qualities of Bishop Bienvenue and also of Weelum McClure, — qualities that ennoble both professions performing their highest offices in common.

The ideal practitioner possesses these. Does the ideal exist? Yes, in city and town, in village and hamlet. But only when he finds the man in the patient and realizes the man in the physician.

To the young men of my audience whose future is my theme I would sound the warning that disuse and neglect is followed by decay; that the preparation for our professional work is exacting, and the demands made on us in the exercise of our profession insistent. Faculties whose use we have found during our college days, tastes whose buds give promise of abundant bloom, are ruthlessly crowded out, if we are delinquent in our stewardship. One hears the lament of Darwin that the beauty of poetry, once a joy, has been lost beyond recall. We think his laurels compensate his loss; but he — he voices his regret.

A little time to-day for the voices of the past, a little time to-morrow for the beauty in our souls, a little time to give the mind escape from slavish toil, and the talents multiply beyond our expectations and meet the Master's commendation.

The ideal practitioner is he who, about to deal with man, has appreciated the meaning of man and has fitted himself to meet the varied problems man presents; who sees in his capacity for knowing, feeling, acting and worshipping the parts in himself, which, developed, makes the symmetrical whole and gives him contact with all men; who seeking to acquire the facts that constitute the science of his profession studies in their application the object of their application, thus perfecting the art of his profession; who lives clean and acts the golden rule, and who leaves in a grateful memory and an untarnished name his *monumentum aere perennius*.

Original Articles.

REMARKS UPON SOME RECENT STUDIES IN THE PATHOGENESIS OF EPILEPSY.*

BY L. PIERCE CLARK, M.D., NEW YORK.

Two new lines of advance have been attempted in the last few years to elucidate the problem of the nature and treatment of epilepsy: (1) that upon the hereditariness of the disease; and (2) the bearing which disorders of metabolism and perversion of the internal secretions of the ductless gland have upon the pathogenesis and treatment of the disease. Neither study is complete enough in point of time and material for us to formulate a definite hypothesis. However, regarding the first line of study, that of the hereditariness of the idiopathic type of the disease, it may be said that it has not been shown either by Davenport and Weeks or Griffith that the heredity acts as a so-called Mendelian unit in transmissibility, nor is the data for such a contention anywhere near as suggestive in this respect as the brief held by the eugenists for the hereditariness of feeble-mindedness. The reason for this is not far to seek, as the so-called idiopathic disease is probably complex in its makeup. Besides, the cases making up the idiopathic group are changing, inasmuch as the group constantly suffers reduction as certain types are being withdrawn and classified under more or less definite ascertained physical causes in the patients' own makeup. Idiopathic epilepsy is thus seen to be advancing along the same roadway, from a nosological point of view at least, as that of the loose and inconclusive term *dementia* in scientific psychiatry. Not so many years ago, it will be remembered, secondary dementia embraced a large class of the insane. Now the term has largely vanished in its more exact components of dementia precox, paralytic dementia, epileptic and alcoholic dementia, etc.

However, the therapeutic nihilism which at

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first might seem to be entailed, were one to accept the present-day eugenic studies of hereditariness of the idiopathic epilepsy, is foiled in greater part by the fact that the presence of hereditariness is no bar to recovery from epilepsy. Indeed, it would seem to be *for* a good prognosis rather than against it, as shown by numerous studies, and especially in my own data, where two thirds of the recoveries were recruited from the hereditary cases. It seems quite likely that the heredity element renders the epilepsy permissive and not mandatory, in which case the host of infectious elements and perversions of bodily metabolism are doubly important in the study of the pathogenesis of the disease as well as in the search for the means of overcoming the same. To a critical review of the work in this latter field we shall now confine our attention.

The question has risen recently whether certain chemic constituents, such as calcium salts, the replacement of which in certain forms of tetany has been of such remedial value, may not also warrant therapeutic trial and use in the idiopathic epileptic. The presence of the idiopathic edemas, the capillary stasis in epileptics in brain, lungs and kidneys, have all pointed to the possible use of the calcium salts in this disease. Although some improvements have been reported, especially in youthful epileptics, and when administered at the inception of the disease, its general use has given no very satisfactory results. I have tried it rather extensively in specially selected cases, but with no great benefit. However, Lallement and Dupony would seem to advance its use in youthful epileptics, and report some degree of betterment in this stage of the disease. In all probability our form of administering the drug by the mouth is a very crude method of getting it into the system as compared to the bodily economy in absorption.

Probably the best therapeutic guide for the more or less successful treatment of epilepsy in modern times has been based upon a proven, or, what is more frequently assumed, basis of autotoxemia. However much the name and theory has lacked in scientific investigation and proof, when one works upon this assumption, giving the patient a thoroughly detailed system of training treatment, in which diet, exercise, occupation and the thorough elimination by the kidneys, bowels and skin is carried out, one gains in return the best results in treating the idiopathic epilepsies. I have detailed the scheme at length in another place, and it is mentioned at this time to show that the plan is quite in accord with recent investigations such as that illustrated by Guelpa and Marie,[1] who made extensive efforts to control epilepsy by what they are pleased to call detoxication and re-education of the alimentary canal. The patients received no food of any kind for the first four days, but were given laxatives instead. Later on they received only a vegetable diet, in limited quantities. This series was repeated every eight days. The patients cheated so much in regard to what they actually ate that the régime could be carried out only in a very few cases. Favorable results were obtained in some instances, but the patients relapsed when errors of diet were committed after their discharge. Improvement was found to run a parallel course with the patient's loss in weight.

When the digestive apparatus has been put quite right, at least so far as one is able to judge, the great majority of epileptics (about 80%) still continue at more or less regular intervals to have seizures. For a long time investigations have been undertaken to determine the toxicity of the blood in those idiopathic epileptics. One of the most recent investigations was undertaken by Meyer,[2] of Germany, who endeavored to ascertain the toxicity of the blood of genuine epileptics as compared with that of normal individuals and non-idiopathic epileptics, — the possibility of producing convulsions through injections of such blood, the existence of qualitative variations of these phenomena after such injections, according to whether the blood had been derived from different kinds of epilepsy, alcoholic epilepsy, or other remote forms, as compared with genuine epilepsy. It was of special interest in ascertaining the convulsion-producing properties of the blood, when this had been obtained during the interval-period free from attacks. The technic of the experiments consisted in the withdrawal of blood from the ulnar vein and its immediate intraperitoneal injection into guinea pigs. The quantity of the injected blood varied between 10 to 20 cm., according to the size of the animal. Those animals which survived the injection and the convulsions were treated for a second and third time with epileptic blood, the term of the new injection always being selected in such a way that anaphylaxis had not had time to develop. The animals were usually somewhat restless directly after the injection, and then became very shy and non-responsive to stimuli of all kinds; this condition lasted only a very short time in those animals which had been treated with non-epileptic blood.

The attacks of the animals which had received epileptic blood were characterized by clonic-tonic muscular twitching of usually all the extremities, the animal in most cases lying on its side. The duration of these spasms varied, but the convulsions appeared in series, with more or less prolonged intervals, generally a few minutes apart. The animals dying after the first injection usually presented the picture of opisthotonus. Those which did not die after the first injection were injected again, as soon as they had entirely recovered, but always before the tenth day. In three experiments with interval-blood from patient whose interval-blood had produced convulsions at the first injection, no convulsive phenomena were noted when the animals received preliminary treatment with normal blood.

In the last experiment series, i. e., those animals which received a second injection of epileptic

[1] Guelpa and Marie: La luttre contre l'épilepsie par la désintoxication et par la rééducation alimentaire. Revue de thérap. méd.-chir., vol. xxvii, no. 1, 1911.

[2] M. Meyer: Zur Frage der Toxizität des Blutes genuiner Epileptiker. Monatsschr. für Psychiat. u. Neurol., January, 1912, p 56.

(not interval) blood, no typical spasms followed in the majority of the cases, seven of ten times, in contradistinction to those treated for the first time with epileptic blood. The impression is thus conveyed, as of a preliminary injection which in six cases consisted of normal blood, in the four others of epileptic blood, had already induced a certain habituation to the poison. Further investigations along this line are still needed.

A review of the experiments, which Meyer wished to be regarded merely as preliminary investigations, seems to show that the assumption of a toxemic epilepsy is certainly justified, in so far as in a long series of cases the blood of genuine epilepsy (especially when withdrawn at the time of the attack) is capable of producing convulsive phenomena of a very special type, in animals, resembling the effects of picrotoxin-poisoning. It is noteworthy that in the majority of the cases these convulsions bear a very definite character, which differs from that noted after injection of blood from non-genuine epileptics.

Remarkable analogies to these findings are supplied by the hypertoxicity of the urine after the attack as compared to the free intervals, and the non-toxicity of the urine of normal individuals, according to the older investigations of French writers (Voisin; Petit) and especially the recent publications of Loewe. He showed that these toxic substances in the urine are the adialyzable substances which are increased after the attack, and which on injection into guinea pigs and rabbits gave rise to spastic phenomena similar to those referred to above, after the injection of epileptic blood.

Although Loewe also noted a toxic effect of adialyzable substances in other psychoses, he also pointed out the characteristic form of the convulsions and their resemblance to true epileptic seizures, as the urine of epileptics was found to act differently from the urine of other psychoses.

Concerning the number of positive adialyzates from the urine, as compared to the blood, Loewe notes 39 positive cases among 50, or not quite 80%. In the tests of the toxicity of the epileptic blood, 2 among 18 experiments were negative, or about 10%. The percentages of the toxicity values of the adialyzates of the urine, therefore, show an entirely favorable proportion to those of the blood.

A second experimental series was conducted for the purpose of ascertaining in which constituent of the blood the poisonous substratum is contained. The serum was found in all cases to be the efficient toxic substratum in the epileptic blood, the blood corpuscles proving harmless.

The experiments furthermore show an interesting dependence of the efficiency of the toxic substance upon the *time* that has elapsed since the last attack. Apparently this poison, which may be assumed to be of endogenous origin in the organism, where it gradually accumulates until at a certain point the motor explosion takes place, in form of the attack, should not be looked for in the general circulation, but is gradually given off to the blood current from the place of its formation, and can only be demonstrated as a toxic constituent in the blood at a time not very far from the explosion.

With special reference to the apparent habituation of the animals to this poison, as indicated by some of the experiments, and in agreement with certain clinical observations, the idea naturally arises that this endogenous toxic agent of mysterious origin may possibly be related to some function of organs with internal secretions; either through over-production of such secretions, or through some hypo-function, in analogy with other affections of this system. In this connection, Claude and Schmiergeld claim to have discovered lesions, in the sense of lost function, of certain glands with an interval secretion, notably the thyroid in epilepsy.

In 12 cases examined by Claude and Schmiergeld,[3] these changes were found to be very profound, the thyroid presenting atrophic sclerosis, mixed with small zones of compensatory hypertrophy. More or less pronounced changes were also demonstrated in the other glands, — hypofunction of the parathyroid glands, the hypophysis, the ovaries, complete destruction of the suprarenal through a hemorrhagic cyst. Analogous changes were found in a number of other cases, whereas in seven cases of symptomatic epilepsy (with simultaneous dementia and organic disease of the central nervous system) the modifications of the endogenic glands were not so pronounced.

Until the site of formation of this toxic substance has been discovered, investigations are in order to confirm the existence of a toxemic epilepsy through special physiological properties, characteristic of the toxic substratum. From the investigations of Meyer and others, as just detailed here, one gains a proper contempt of any narrow therapeutic concern in suppressing the individual fits in epilepsy by sedatives or otherwise. It may be justly argued, indeed, that the suppression of the individual seizures of epilepsy is not only a narrow view of the disease, but may prolong and continue the disease through preventing the system's riddance of positive and harmful toxins.

There are those who justly maintain that the term "genuine epilepsy" should be reserved for that symptom-complex exclusively, which is produced through an intoxication.[4] The organism of epileptics has lost the normal capacity of elimination or neutralization of certain products of the metabolism which are characterized by their great toxicity and affinity to the nervous system, more particularly the cerebral cortex. When the increase of these toxins, which gradually accumulate, has reached a certain degree, the body endeavors to get rid of these poisons, through attacks or convulsions or other psychic disturbances. Nothing very definite is known concerning the chemistry of these substances, which are pre-

[3] Epilepsy and the endogenic glands. French Psych. Neurol. Congress, 1908.
[4] Heinrich: Neurol. Centralbl., xxx, 1911, p. 607.

sumably derived from the nitrogen series. Krainsky still assumes that ammonium carbonate plays a part in this connection, and Danaki refers to ammoniam, or amin bases. Their respective positions on this subject still remain isolated without great hypothetical and little clinical support.

The organism undoubtedly undergoes a loss of phosphorus under the influence of the attacks. Anatomical changes of the brain can no longer enter into consideration in the true etiology of epilepsy. Its real pathogenesis is a systemic disorder, a worthy field of investigation by team work of the neurologist and internist.

In a search for the prompting agents endogenous in origin which may produce the metabolic disturbances of the epileptic, serious attention has been paid to organotherapy and opotherapy, the juices or secreting substances from these glands. My experience in four cases under my personal care quite tallies with that of Mariet and Boso,[5] who not only obtained no diminution of the attacks, but, on the contrary, noted an excess of seizures. In their cases the ingestion of the pituitary gland produced attacks of delirium which appear three or four days after the administration of the gland, and in certain cases assume the characteristic features of the epileptic excitement; apparently these attacks have a distinct causative relation with the ingestion of the gland. The great variation in different preparations and the inexact physiologic action of pituitrin make this line of therapy very questionable.

Time and space forbid an analysis here of the studies of the metabolism and perversion of bodily secretions, including the obscure functioning of the ductless glands. Suffice it to say that any present-day therapy based upon them must still be too empirical in character to be used as clinical guides in the successful management of this most baffling disease.

To summarize: (1) Genuine epilepsy would seem to be dependent upon certain unknown complex heredity factors producing a form of cortical and subcortical instability upon which a variety of endogenous toxins may act, causing the disease.

(2) The fit is an exhibition of a reflex action of the disease, and as such should not be seriously interfered with by sedatives *per se*. The sedative treatment of epilepsy is, therefore, to be thoroughly discouraged so long as there is hope of bringing the real clinical pathogenesis of the disease under control. The above rather obvious truisms may seem trite and commonplace to many, but the sedative treatment is still the main one followed by the majority of physicians to-day.

ALCOHOL AS A DRUG.

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In considering the effects of alcohol on the human system, the local actions of the drug must be carefully differentiated from those which it produces after absorption into the blood.

[5] Gilbert et Carnot: Opothérapie. Monograph, Paris, 1911.

Distilled liquors, the alcoholic content of which varies from 40 to 80%, produce a local irritation of the mucous membranes of the esophagus and stomach, the intensity of which is proportional to the alcoholic strength of the beverage. In the average healthy person not accustomed to liquor, two or three ounces will cause intense burning in the esophagus, nausea, perhaps vomiting, followed possibly by an acute catarrhal condition of the stomach.

This local irritant action of alcohol is due to an abstraction of water from the tissues. It has been used therapeutically to cause a reflex stimulation of the respiration in persons rescued from drowning. As we shall see later, such reflex action is to be expected only in persons not accustomed to the use of distilled liquors.

If the use of strong liquor is continued at frequent intervals, the tissues will gradually lose their sensitiveness, and much larger quantities may then be taken without causing obvious local reactions. This is because a partial destruction of the more sensitive elements has occurred, the sensitive elements being replaced by non-sensitive connective tissue. The gastric glands are soon involved, and as a result of their atrophy we have the picture presented by chronic alcoholic gastritis. The action of concentrated liquors on the mucous membrane of the stomach and on the glandular tissues is intensified by the peculiar property of the stomach directly to absorb concentrated solutions of alcohol. Dilute solutions of alcohol pass the stomach for the most part unabsorbed and produce very little local reaction. The effects produced by a long-continued use of dilute alcoholic beverages are more apt to become apparent in the organs which attempt to destroy the alcohol or to eliminate it from the system.

After absorption into the circulation, alcohol acts as a nerve and muscle poison, producing conditions of acute and chronic intoxication. Whether or not alcohol may at times be of use to counteract pathological conditions occurring in consequence of disease, conditions for which drugs like morphine, atropine, chloral, digitalis, etc., are often successfully used, can be learned only by a careful study from a pharmacological point of view of its action after absorption.

Alcohol is a member of the group of so-called narcotic drugs, the other better known members of the group being chloral, chloroform, ether and ethyl bromide. Like the other members of the group, alcohol absorbed into the blood depresses from the start successively the functions of the brain, the spinal cord and the medulla oblongata. As in the case of chloroform and ether, alcohol in sufficient quantity will cause loss of consciousness and disappearance of the reflexes, — in fact, a complete narcosis in which it is possible to carry out a major surgical operation.

Let us consider the action of alcohol on the various vital functions more in detail.

Mentally there is a loss of ability to concentrate the attention, an impairment of the facility to exercise finer judgment and reflection, a diminution of the powers of apperception or the correla-

tion of ideas and impressions. As a result, the soldier becomes more daring because he no longer has a proper conception of the danger he faces and because he does not reflect upon it. The speaker is rendered less conscious of a critical audience, and he loses his natural care and reserve in the expression of his thoughts. He speaks more freely, with more apparent enthusiasm, but with less accuracy.

Self-judgment suffers serious impairment from alcohol. Thus, for example, a person who in his sober moments knows himself to be of limited knowledge and experience is surprised to find that under the influence of alcohol he is apparently able not merely to discuss with ease complex problems, but to pass final judgment on matters of great social or economic importance. When the effect of the alcohol has passed, his embarrassment is all the greater.

A person under the influence of liquor is apt to think himself endowed with great muscular strength, and he will frequently exhaust himself with an unusual and useless display of muscular exertion even to the point of permanent harm, while a sober person is careful to husband his strength.

A lack of control over the emotions is a very characteristic result of alcohol action. In consequence of this, we see now explosions of boisterous mirth, now attacks of deepest sadness, both without apparent cause. While one man may develop an ugly fighting spirit, another may make a great display of unwarranted affection. But even at this stage the man of culture retains more self-control than his illiterate fellow-drinker.

All the phenomena I have described have been attributed to a stimulating action of alcohol; as a matter of fact, they are the result of a pronounced depression of the mental functions. This fact has been established by many experiments which test the efficiency of mental and physical work after the ingestion of alcohol.

Kraepelin [2] determined that while alcohol in small amounts depressed the sensory and intellectual functions from the start, it stimulated the motor functions before it depressed them. When it was given in larger amounts, Kraepelin found that there was no primary motor stimulation.[3] This theory of a primary stimulation of the motor functions by small quantities of alcohol has been used by some in support of the view that alcohol may at times act as a stimulant to muscular work. But even assuming that there is a slight primary stimulation of this kind, an assumption which is open to doubt, such stimulation would be quite negligible in comparison to the characteristic and dominating depression which follows upon alcohol.

All our important drugs exhibit a variety of actions; if in classifying them we attempted to do justice to each and every one of these actions, it would be quite impossible to have any system at all, for we should find that many so-called stimulants may at times act as depressants, and vice versa. Take, for example, hydrocyanic acid. This drug in the free state or in form of its potassium salt, which is popularly known as cyanide of potash, is the most powerful stimulant to respiration known. When it is given in very small doses experimentally to rabbits, the respiration may be increased to more than ten times the normal, both in number of respirations and in total volume of respired air. This stimulation is, however, of very short duration; it is followed almost immediately by a most intense depression of the respiratory center, which leads very quickly to complete stoppage of respiration. It is this paralysis of respiration which acts as the chief cause of death in the poisoning with hydrocyanic acid or potassium cyanide. We have here, then, a drug which in the course of, say, five minutes will cause both the most powerful stimulation of respiration known and complete paralysis of respiration. How shall we classify such a drug? As one of the most powerful depressants of the central nervous system, of course, because depression is the dominant action, because it is impossible to have the stimulation without the consequent intense depression.

And so in the case of alcohol; even if there is a slight primary stimulation of the motor apparatus, it is quickly followed by a much greater depression of the entire central nervous system.

The lay use of the word "stimulation" is a very loose one. To the layman, the patient who appears better after taking some drug is "stimulated," when, as a matter of fact, he may show the results of a depression of the central nervous system. Thus, for instance, when a highly nervous individual or one who is the victim of a "nervous breakdown" is better as the result of being given potassium bromide to depress or rest his over-excited or over-stimulated nervous system, the layman will say that he has been given a "tonic" or "stimulant." It is a similar misinterpretation of the action of alcohol by the laity and even by physicians which is responsible for the fact that in the popular mind alcohol still enjoys a certain reputation as a beneficial stimulant. Laboratory experiments do not appeal very much to the laity and, therefore, all practical examples which tend to disprove this idea are to be welcomed.

During one of his campaigns, General Wolseley [4] evolved a very practical test of alcohol as a stimulant to hard work. On one of the long marches which occupied several weeks for its completion, he divided some of his men into three squads; the first squad was given a daily ration of whiskey, the second a daily ration of beer and the third nothing to drink but water.

At first the whiskey squad marched gaily ahead of the others. It was not long, however, before the whiskey squad was overtaken by the beer squad, which then maintained the lead for some time. But finally the water squad, which was marching at a moderate, steady gait, overtook first the whiskey squad, then the beer squad, and reached the destination long before its competitors. The alcohol benumbed for a while the

sense of fatigue in the two liquor squads but hastened exhaustion from the first.

Another action of alcohol after absorption is that of depression of the vasomotor center in the medulla oblongata. This center controls the dilatation and contraction of the blood vessels; if it is depressed or paralyzed, the blood vessels lose their tone, become flaccid, and allow much more blood to enter them. The blood vessels of the face and neck are the first to lose tone, and, therefore, we see as an early symptom of alcoholic action a flushing of the face and neck. If more alcohol is taken, this dilatation of superficial blood vessels becomes more general. As a result more blood reaches those nerves of the skin which are sensitive to changes in temperature, and a warm glow is felt all over the body. This is taken by the laity for stimulation; a person under its influence is apt to think that the alcohol has made him warmer, when, as a matter of fact, the loss of heat from the body through radiation has increased. How serious such loss of heat may sometimes be is well shown by another practical example.

A company of travelers [5] lost their way on a trackless plain one very cold day and were overtaken by darkness. Against the advice of their leader all but three drank more or less whiskey. These three were cold during the night but did not suffer. The others who drank more or less suffered or were frozen proportionally. Some did not recover for weeks, some never recovered; and three who got drunk before going to sleep were dead in the morning. The loss of heat from their bodies through radiation during the long cold night had been so great that the temperature of the body had fallen below the point at which life can still be supported, and they slept off into death.

Death from acute alcoholism, as the author has seen it repeatedly in his medico-legal experience, is caused by a general dilatation of the veins. With increasing quantities of alcohol the entire venous system loses tone; in time the dilatation involves the portal system and the venæ cavæ, and the blood pressure falls constantly, until finally it is so low that the circulation is no longer sufficient to support life, — the victim bleeds to death into his own great veins. Complete paralysis of the heart and of the central nervous system assists materially in hastening the end.

Pauly and Bonne [6] analyzed the organs of a man who died in consequence of acute alcoholic poisoning. They found the liver to contain .21% alcohol, the blood .33% and the brain .47%. In other words, the brain contained weight for weight more than twice as much alcohol as the liver and nearly one half again as much as the blood.

These figures are comprehensible only on the theory that the brain cells, having a special affinity for the alcohol molecules, anchor them; and recent researches on certain fat-like substances, the lipoids, have thrown much light on the chemical and physiological processes which are here involved.

The lipoids form a part of every body cell, but they are found in largest proportion in the brain and other tissues of the central nervous system. Hans Meyer [7] has shown that chloroform, ether and other agents used in modern surgery to produce unconsciousness do so by combining with the lipoids of the central nervous system (reciprocal solution). Alcohol was found to act like the other anesthetics. It is undoubtedly the high content of lipoids, therefore, which causes the brain to retain so much alcohol and which renders it especially sensitive to the depressing and paralyzing action of this drug. The fact that a continuous use of large amounts of alcohol is the commonest cause of insanity finds an easy explanation in the chemical and anatomical findings recorded above.

Alcohol also destroys the red corpuscles [8] and causes a chemical change in the hemoglobin of the blood.[9]

What, then, are the therapeutic indications for the use of alcohol? It might be used in any case where hypnosis or narcosis is desired; in other words, as a general depressant of the central nervous system.

This, however, is not the purpose for which it has been used in the past and for which it is still given to a certain extent in medicine. It was and is given as a general stimulant, especially in the acute infectious diseases such as pneumonia, typhoid fever, diphtheria, scarlet fever, malignant endocarditis, etc. It is quite obvious that the use of alcohol in these diseases for the purpose of stimulation is a serious therapeutic error. Such application of alcohol is fortunately falling more and more into disuse among the better informed practitioners, and probably the results obtained in one of the London hospitals for the treatment of pneumonia are in a large measure responsible for the change in attitude. It was found that during and including the years 1903 to 1906 the London Temperance Hospital led all the other hospitals of London in the percentage of recoveries from pneumonia, the only difference in treatment between this hospital and the other hospitals being found in the practical omission of alcohol at the Temperance Hospital.[10]

Alcohol has also been recommended in disease because it is supposed to have a high food value; its use in the treatment of wasting diseases was thought to prevent great tissue loss in the patient.

It is true that alcohol is quickly absorbed from the digestive tract and that a fair amount, according to Benedict and his assistants about three ounces a day for the adult man, may be completely oxidized or burned in the system. It is true, moreover, that the heat produced in the body by the oxidation of a given quantity of alcohol is greater than that produced by a like amount of proteid or sugar, and nearly as great as that obtainable from the oxidation of the same amount of fat, but its depressing and poisonous action on the system more than balances any food value it may have. The fact, moreover, that alcohol is oxidized to a certain extent in the body does not necessarily indicate that the alcohol

is serving the purpose of food or fuel, since destruction of drugs by oxidation is one of the common methods employed by the animal organism to rid itself of poisonous agents. Faust [11] has shown that tolerance for morphine, i. e., the power of the human system to withstand the effects of increasing quantities of morphine, is due to the ability on the part of the system to destroy the drug. Through tolerance the system gradually acquires the power to destroy over two hundred times the quantity of the drug which was originally the fatal dose. This is also true of cocaine. Does it follow from this that morphine and cocaine are foods?

Alcohol differs from the true food principles in one very essential point, — it cannot act as a tissue builder; it is, therefore, not a food and there is no reason why it should not be classed with substances like morphine and cocaine, which are deleterious to the system, but the oxidation of which in the body nevertheless yields a certain amount of energy. In pneumonia and the other acute infectious diseases the increased destruction of nitrogenous constituents is of great moment. The use of alcohol does not influence this proteid waste except perhaps to cause still greater disturbance of a metabolism which is already seriously affected by the disease.

Many careful experimenters have shown that alcohol lowers the resistance of the system to disease and other forms of intoxication, but clinical facts are more convincing to the public. It has been estimated by various authors that alcoholism is present as a contributary cause in from 66 to 80% of all patients in hospitals for consumption.[12]

Chronic alcoholic poisoning is a subject of such vast dimensions that it can be merely touched upon in a paper like the present. The chronic diseases which are caused by a long-continued use of alcohol are for the most part the result of changes produced in the cells themselves through the local irritant action of alcohol. These diseases are among the most hopeless and distressing known to medicine; the heart, the liver, the digestive system, the kidneys, the blood vessels, the brain, in fact, each and every one of the organs, the functions of which are most vital to the system, is attacked slowly but surely and damaged beyond repair. And this damage may occur in consequence of a long-continued and steady consumption of even so-called moderate quantities of alcohol.

With many physicians the use of alcohol in their practice has become merely a confirmed habit which they are loth to abandon even though they may feel that there is no justification to continue it. At a recent medical meeting a physician was heard to make the following typical statement: "I know the pharmacologists all say that there is no indication for the use of alcohol, that it does not act as a stimulant, and that sort of thing, but I have always used alcohol and I am going to keep on using it just the same."

This attitude on the part of practitioners offers a serious obstacle to the campaign of popular education concerning the true nature of alcohol. The delusion that alcohol may be of benefit to the system as a stimulant is firmly rooted in the mind of the layman, and the family doctor is the only one who can convince him that he is wrong.

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THE REGULATION OF MIDWIFERY.*

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YOUR committee has asked me to speak on the regulation of midwifery.

Midwifery is defined in the Century Dictionary as: "The practice of obstetrics; the practice of assisting women in childbirth."

So to avoid any possible misunderstanding, I am using midwifery as synonymous with obstetrics, and shall speak of the obstetrical problems in our American cities where we have a large foreign population with which to contend.

Now if we look at the obstetrics as conducted in the foreign quarters of any of our large cities, we are at once brought face to face with two classes of practitioners, — the midwife, usually dirty and untrained, and her competitor or accomplice, the doctor, usually ignorant and often unscrupulous. It is of these two classes of practitioners I wish to speak.

But as we have used the word "foreign" in connection with those that employ the midwife, let us for a few moments retrace the steps of the immigrant and see the midwife at home.

In Europe, obstetrics has always been in the hands of midwives, and the necessity for the trained midwife was recognized as soon as higher medical knowledge was considered essential for the practice of medicine. Let us take Germany as an example of a country with a well-established midwife system, realizing that what is true of Germany is with only slight variations true of the whole of Europe.

In Germany the midwife is carefully trained by the government in well-established Kliniks, usually by university professors.

Midwives are rigidly examined before they are allowed to practice. Their exact duties and limitations are carefully outlined by law. Before starting in practice, the midwife must report to the medical inspector in charge of that locality,

* Read before the Conference on Infant Hygiene, Philadelphia, May 22, 1912.

and after he has passed upon her credentials, she will be allowed to go to work, but she is constantly under his supervision, and should she neglect her duty or disobey his instructions, she is subject to fine or imprisonment. Not only that, but she must report at once any abnormal symptoms occurring in the condition of any one of her patients to a physician, and should he fail to respond to her summons, he is subject to punishment.

In considering the continental midwife and her work we must remember the high standing of European physicians. The standard of education required before they are permitted to practice is so high that imposters and charlatans and, to a lesser degree, dishonorable physicians, are excluded. Thus it is that the midwife when she summons medical aid must necessarily call upon a trained practitioner.

Then we must also bear in mind that in European countries laws on the statute books are enforced without the slightest regard for local popular sentiment, so that it is next to impossible for the midwife to violate the law and practice outside of her narrow limits without being punished.

But in spite of this complete system, Germany to-day is seriously in doubt as to the worth of her midwife system. Many obstetricians feel that just as long as the midwife is tolerated, just so long puerperal fever will reap its yearly harvest, and each year thousands of mothers and newborn babies will yield up their lives unnecessarily as a result of the flaws and fallacies in the midwife system.

In England we find an entirely different story. True, the midwife has always flourished there, but the government regulation is of very recent date. The midwives were so numerous, and the trained midwives so very few, that early in the present century tremendous pressure was brought to bear on Parliament, and the present midwife system was adopted, in spite of very vigorous medical opposition.

In comparing the system with America, we must bear in mind that in England, as on the continent, the standing of the medical profession is high and the standard uniform. Quacks are not countenanced, and unscrupulous medical men comparatively few.

The result of this new system in England has been very curious and interesting. The obstetricians, of all the medical men, alone urged the passage of the midwife bill because they saw the worst results of the old régime, and they felt that any change must be an improvement. The general practitioner fought the bill. Now we see the tables turned; for the most part the general practitioners are in favor of the changed conditions. The midwife works *with* the general practitioner and saves him much wearisome and unprofitable work. The general community is probably, at the present time, better off, because midwives were numerous and very dirty and now they are, comparatively speaking, clean. But the obstetricians are feeling considerable regret, for they find that England is satisfied with the midwife instead of the physician, which must steadily make for a lower obstetrical standard.

One member of the Midwives Board for 1911, Sir George Fordham, states in no uncertain terms that all the normal midwifery of the country should be in the hands of the midwives, and the medical profession act merely as consultants in emergencies. Deprived of the bulk of normal obstetrics of to-day, how can the English physician of the future be prepared competently to care for the emergencies? The lowering of the obstetrical standard must ultimately react on the infant welfare of the future.

As the situation we are facing in this country is not so much the midwife question as the question of poor obstetrics in general, it is interesting to note the recent figures of Chalmers, in Glasgow, where the physicians are good and the nurses and midwives without proper training or supervision; he found that puerperal fever was occurring in the practice of midwives and nurses at twice the rate which obtained in the practice of qualified practitioners when they had charge of the patient from the beginning. In this country what little investigation has been accomplished has usually proved that in this regard the midwives were no worse than the doctors with whom they were in competition. This has been used as an argument in favor of the midwives; does it not, however, merely show the frightful level to which obstetrical practice in America has been allowed to sink?

Professor Williams, of Johns Hopkins, has recently proved that obstetrics is shamefully neglected in most of our medical schools, and that even the large majority of students in our best schools at the time of graduation are not sufficiently trained to conduct properly a case of normal labor on their own responsibility.

As we look at the history of obstetrics in America, we do not find any uniform standard. The situation differed probably in each of the thirteen colonies, and now we have a different story in each state of the Union.

Let us see what has been the history of midwifery in Massachusetts, and how the problem has been treated down to the present time.

That the midwife was the chief practitioner of obstetrics in Massachusetts in colonial times, we judge from the following paragraph written by a Boston physician in 1820: "Among ourselves it is scarcely more than half a century since females were almost the only accoucheurs. It was one of the first and happiest fruits of improved medical education in America that they were excluded from practice, and it was only by the united and persevering exertions of some of the most distinguished individuals our profession has been able to boast, that this was effected." So we see that until about 1770 midwives flourished in Massachusetts, but that from then on they disappeared from practice, so that the mere proposal of one coming to Boston to practice brings out a forceful pamphlet on the midwife question.

When the midwife came to Boston, and how

she flourished in other parts of Massachusetts, it is not difficult to imagine. She came with her fellow countrymen from Austria, from Russia and from Italy, and working among her own people she was not noticed until gradually her position became established and she gained recognition in that the laws for registration of births recognized her existence. However, when the Board of Registration in Medicine was established, in 1894, and laws governing the practice of medicine were passed, the midwife was not mentioned, and by such omission the Supreme Court of Massachusetts has decided that midwives are excluded from the practice of their profession, and midwives have been fined for violating the law.

But this does not mean that Massachusetts is free from midwives. Careful search reveals them at work in every city where the foreigner forms a large proportion of the population. But because of the enforcement of the law, feeble as it has been, the midwife is not conspicuous. How many midwives there are, and how active, it is very hard to say; careful investigation has, however, revealed some one hundred and fifty in more or less active practice. And in five cities, where they are unchecked in their activities, in 1909 they attended 2,138 births, or an average of 15% of all the births in those five cities.

In Boston during the year 1911, not a single birth was reported to the city registrar by a midwife. But this does not mean that Boston is free from midwives. They exist, unfortunately, but they are closely connected with physicians, who report the births for the midwives. Perhaps to some this would seem an ideal solution of the problem — the midwife conducting the normal case, the physician assuming the responsibility and exercising a supervision over the midwife. This might be ideal in foreign countries, but here in America the physician who will work with the midwife is not usually of such high standing as to promise much for the welfare of the patients.

In view of this in the recent Prompt Birth Return law which has just been passed in Massachusetts, there is a clause requiring the physician or midwife signing the report to state whether or not they were actually present *at* the birth. Thus we hope gradually to secure evidence which will make it possible to prevent the midwives from continuing in practice.

But in such a matter as this, legislation is powerless. The keynote is education. We must educate the general public to realize the necessity for good obstetrics, and place the means of obtaining it at the disposal of all, and then with or without laws against the midwife she will disappear from our cities.

As a factor in this campaign of education a well-conducted maternity dispensary is of tremendous power. Let me describe the working units of such an institution.

A few rooms in a congested portion of the tenement house district; the patients apply for treatment as soon as they wish, but the earlier the better, preferably as soon as pregnancy is suspected. As soon as the diagnosis is made the patient is visited by a social worker, who sees to it that the patient is worthy of charity, or else that a nominal fee is promised. The patient returns for monthly conferences, meanwhile being visited by a district nurse. Should an abnormality or any deformity be discovered, the patient will be delivered in a maternity hospital, but if all is normal, in her own home by students of medicine in medical school centers, under the supervision of competent instructors, or by young *physicians*, where students are not obtainable. Such an institution advertises itself and educates a constantly increasing proportion of the mothers of the future.

We are gradually developing the details of such a system in Boston, where the Out-Patient Department of the Lying-In Hospital has for many years cared for more than 10% of all the births in the city. To show that the foreign population will come to such a hospital, I have collected the following figures from the records of the pregnancy clinic of the Boston Lying-In Hospital.

Of the last 1,000 cases that have applied for treatment in our pregnancy clinic, 83% were foreign born, a large proportion of them speaking little or no English; 51% of these 1,000 cases were born in Russia and 13% in Italy.

Another method of education has been recently started by the Division of Child Hygiene, of the Boston Board of Health. To prevent the high infant mortality in certain of the most congested portions of Boston, the scheme was adopted last fall of sending around nurses to make visits in the homes where infant deaths had occurred from enteric disorders the previous year. Where these nurses found that another child was expected, they tactfully began a campaign of education by advising competent hospital care, but where this was refused, even after continued urging, they endeavored to keep the confidence of the family, in spite of what might ensue, striving to give prenatal and post-partum care, so far as the patient would permit. The work started with two nurses, but it has been so successful that six nurses are now at work in greatly increased territory.

There is another method of education which might be afforded these ignorant immigrants, and that is to place in their hands upon arrival in this country a statement of the true facts as to midwives and doctors, explaining that these terms in America are not necessarily equal to their known European value; also where to apply for advice in case of illness.

Let us briefly see what has been done elsewhere in America. In New York City where over 50,000 births are conducted by midwives each year, the problem has seemed too stupendous to be met as in Massachusetts, and so the midwife has been recognized and a school established for her education, and laws have been passed for her regulation and supervision.

In Pennsylvania, until 1909, there was no law controlling the midwives. But in that year such a law was passed. Dr. Newmayer, having had charge of the working of this law in Philadelphia,

has come to the conclusion that the midwife is *not* an economic necessity. He believes that by education she can be gradually eliminated. Such a work of education with this end in view has been begun in Pittsburg in the last few weeks. Finding that some 5,000 babies were born every year in that city without medical attendance, the Pittsburg Maternity Dispensary was established to care for this portion of the population. It has an efficient corps of physicians, nurses and social workers.

To summarize the regulation of midwifery in America, we have first of all to face these problems: obstetrical education in our medical schools, the midwife, and the ignorance and prejudice of the immigrant population. Let us be prepared to meet these problems with eyes opened to the facts. Our medical schools are not giving the proper training in obstetrics. The general public is not awakened to the value of obstetrically trained physicians. The man or the woman who is to take the responsibility of obstetrical cases must be prepared to cope with each and every emergency which may occur during labor or the puerperium; must be, in other words, an obstetrician thoroughly trained in general medicine to give the best results, to give the attention we know to be necessary. Anything less than this is a makeshift and a substitution and must be so regarded in the clear light of modern science. To train women to take care of normal cases only must be fallacious, for who is to make the diagnosis and be sure that the case is normal?

Until we have a uniform standard of medical education, we shall be sure to find the ignorant physician summoned by the midwife in trouble; the better trained doctors will not be called upon; the contrast would be too marked.

It seems hardly fair to punish the immigrant mother for her ignorance. It seems hardly right to say there shall be two standards of obstetrics, one for the poor and ignorant, and another for the intelligent and well-to-do.

Let us frankly acknowledge our shortcomings and strive to educate the general public to realize the importance, the vital importance, of obstetrics, and demand that it shall be thoroughly taught to every medical student before he is allowed to practice medicine. And to only such persons as have adequate training shall the full responsibility of attending obstetrical cases be entrusted.

Then let us teach our immigrants that in America we believe in equality, as near as possible an equal chance for life, health and happiness given to each child at birth, — a single standard of obstetrics for all.

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HYPEREMIC TREATMENT OF ACUTE ANTERIOR POLIOMYELITIS. A PRELIMINARY REPORT.*

BY PAUL MCILHENNY, M.D., NEW ORLEANS.

THE disastrous results of infantile paralysis are so far reaching and terrible that the whole medical world has been challenged to develop some form of treatment which can be easily and simply carried out so that the appalling consequences of that greatly to be feared malady may be relieved or somewhat ameliorated. From the earliest writings to the present the etiology and successful treatment have persistently baffled almost all observers, and even in our present day of enlightenment our only means of overcoming a few of the resulting paralyses is through surgical interference.

The hyperemic treatment as developed by Bier had been proven to be of such marked therapeutic value in the treatment of inflammatory conditions, and having seen remarkable results obtained from its application in joint inflammations, I decided to apply it to a case of acute anterior poliomyelitis which I was fortunate enough to see a day or two after the initial attack in June of 1906. In order that I may deal more clearly with what is to follow, it is necessary that I run superficially over the blood supply of the cord, the etiology of this disease and its pathology in so far as the cord and its arteries are concerned. The spinal cord derives its blood supply from the anterior, posterior and lateral spinal arteries, principally from the first named, which arises from the vertebral by two trunks, which, converging just below the medulla oblongata, runs down anterior portion of the cord and receives branches from the intercostal arteries in the dorsal region and from the lumbar, ilio-lumbar and lateral sacral arteries in the lower portion of the spine. Those arteries also supply the skin,

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subcutaneous structures and muscles of the back in its lower portion.

Etiology. — The present-day conception of anterior poliomyelitis is that it is an infective disease; the virus will pass through the finest filter, and the organism has not yet been stained, nor has it been seen under the highest power of the microscope; it is transmissible from man to monkeys and from monkeys to man.

Pathology. — The primary lesion is an inflammation which spreads ever the greater portion of the cord and its blood vessels, but is more intense in the cervical and lumbar enlargements, particularly in the anterior cornua, the most vascular part of the cord, as it is supplied principally by the anterior spinal artery. The most striking change, microscopically observed, is that present in the blood vessels; they are greatly engorged and surrounded by leucocytes. In the white matter, leucocytes occur, but not in great quantities. The exudation of leucocytes leads to both temporary and permanent damage to the motor cells in this region, some of them undergoing complete degeneration. The cells may be swollen and colorless, with vacuola degeneration of the nucleolus. The nerve fibers of the anterior roots show degeneration, and the axis-cylinders swell and disintegrate. When the inflammation subsides, a gradual improvement takes place in those areas where the destruction of the gray matter has been incomplete. There has been great dispute as to where the primary lesion begins, some observers claiming that the cells, and others that the blood vessels, are the first attacked; a point that increases the probability of the latter view is the great vascular change, and the fact that the nearer the ganglion cells are to the blood vessels, the more they degenerate, and at that no definite group of cells but those supplied by the effected blood vessel or vessels.

Taking it for granted that the inflammatory changes and consequent destruction in the cord are caused by an obscure organism, our aim must be to get rid of this virus and relieve the inflammation as quickly as possible, before permanent damage has been done; therefore, if we can cause an active hyperemia of the cord, or accelerate the current through its arteries, there is every reason to believe that the inflammatory process will become diminished and cell destruction stopped. No matter whether the primary lesion is in the blood vessels or cells, by increasing the blood current the lesion in the blood vessels will be stopped, and more nutrition being brought to the cells, they will be strengthened and gradually recuperate. The value of hyperemia in inflammatory conditions has been so well established already that it needs no introduction from me. The point is how can we best obtain a hyperemia of the back so as to cause an acceleration of the current through the spinal arteries. In my opinion this can be easily and effectually accomplished by applying Bier's dry cups intermittently to the back along both sides of the spine, and directly over the posterior spinous processes from the sacrum to the cervical region. The cups should be at least an inch and a half in diameter, and should be applied for three minutes with one minute test, and this procedure continued for an hour. In this manner a very active hyperemia is caused in the muscles of the back throughout its whole length, and as the spinal arteries are supplied by branches of the arteries supplying the muscles, etc., of the back an acceleration of the current in these arteries will be accomplished; therefore, the germicidal properties of hyperemia will be brought to bear upon the organisms, and at the same time the inflammatory products will be greatly diminished and cell nutrition increased. As the extent of the inflammation varies greatly in different cases it is impossible to state at what time we may look for improvement, some cases responding quicker than others, especially those to which a more active hyperemia can be applied. In order that this treatment may be most effective, it is necessary to begin the cupping during the initial stage, or as soon after as is possible, for the longer we allow the stasis in the blood vessels to remain, the more extensive will be the destruction of the cells and the consequent permanent paralysis. In by far the majority of cases permanent damage to the cells does not occur under three days, and even at that time it is extremely difficult to determine which muscles, if any, are totally paralyzed on account of the characteristic muscular soreness, and the impossibility of eliciting anything with the faradic current owing to the increased pain caused by its use. According to Tubby and other observers, complete recovery undoubtedly does occur in the limbs affected in some *rare* cases, and in the majority of cases even if not treated there is always improvement to a certain extent, but I believe that most of the cases of so-called poliomyelitis which get well without resulting paralysis and without having had any treatment whatsoever are not true cases of this disease, but some mild form of meningitis, or multiple neuritis following an unrecognized case of nasal diphtheria.

The plan of treatment that I began in June, 1906, and have carried out with the five cases which I have had to date with the most satisfactory results, has demonstrated to me very forcibly the value of active hyperemia in infantile paralysis, and is as follows: The alimentary canal is thoroughly cleansed, the limb or limbs lightly bandaged with cotton to keep them warm, stimulating liquid diet, and strychnia in minute doses. Cups are applied intermittently to both sides of the spine, and directly over the posterior processes from the sacrum to the cervical region, for one hour daily, and this continued regularly until muscular soreness has disappeared and voluntary motion in the affected muscles begins to return; the bandages are then removed and massage begun, general diet gradually being allowed, and the cupping continued. If we are so fortunate as to be able to begin treatment a day or two after the initial attack, we may look for a diminution of the muscular soreness about the fourth day, and a slight return of voluntary

motion about the tenth or twelfth day, depending upon the extent of the inflammation when treatment was begun and the amount of hyperemia the patient can bear. As the patient becomes more accustomed to the treatment, the improvement will be more rapid; this treatment should be continued until the muscles have regained their tone.

Case 1. H. P., age fifteen months, female, native of New Orleans. Was seen on June 21, 1906. Child began walking at ten months. On evening of June 19 became fretful and had attacks of vomiting, with high fever and headache; on morning of 20th, the mother noticed that child could not stand up, and that right leg was sore. Examination on June 21, showed a paralysis of the dorsal flexors of the right foot and of the quad-extensor, with marked soreness in those muscles. Cupping was immediately begun, $\frac{1}{120}$ gr. strychnia and thorough purge ordered. On June 23 muscular soreness had disappeared and massage was begun. On 30th, noticed slight dorsal movement of toes. July 6, child could dorsal flex the foot; 23d, slight contraction in quad-extenser. Aug. 12, could extend leg and stand up; 22d was walking a little. Sept. 1, was able to walk fairly well, and on the 24th was discharged with no evidence of paralysis. She was seen again on March 6, 1907, and both legs were practically the same size.

Case 2. A. M., male, age twenty-one months, native of New Orleans, was first seen on Sept. 21, 1908. Child began walking at eleven months. On Sept. 16 he supped heartily and slept well during the first part of the night; early in the morning of the 17th the mother noticed that he was feverish and restless; during the day he complained of nausea and refused nourishment; in the evening the mother found he could not stand up or move the left leg, which was painful to the touch. He was brought to my office on Sept. 21. Examination showed a strong, well-developed boy; left foot had decided drop and patella reflex was absent; faradic test was applied but caused great pain and was abandoned; apparent paralysis of dorsal flexors of left foot, with slight involvement of the quad-extensor. Treatment was the same as in the previous case, with the addition of cotton bandages to leg. On the fifth day the muscular soreness had disappeared and massage was begun; on twelfth day he could move the toes; on nineteenth day could extend leg and slightly flex foot; on twenty-third day he developed a cold in the head which lasted three days, and the leg condition remained stationary for nearly two weeks, but treatment was continued the same. On Oct. 24, he wanted to stand, and on Nov. 1, began walking. I saw him on May 5, 1909, and from time to time since, and he shows no evidence of paralysis.

Case 3. T. N. W., female, age eighteen months, native of New Orleans. Was first seen on Aug. 14, 1909. On the sixth, child was bright; during the night had cramps, nausea and fever; on morning of 7th, mother found her listless; in the afternoon she seemed to be weak in right leg and was kept in bed; the next morning the leg was sore and she could not move it or stand up. Examination on the 14th showed a poorly nourished girl with apparently no power in her right leg; both legs were the same size, but her right was painful to the touch, and patella reflex was absent. She could not stand up, nor could she dorsally flex the foot or extend the leg, and in crawling would drag right leg. Hyperemic treatment was immediately begun. On Aug. 20 soreness had disappeared; 26th, foot slightly improved. Sept. 8 could slightly dorsal flex foot and extend leg a little. On 20th, foot greatly improved, could completely extend toes, and there was decided motion in quad-extensor, but right thigh was one-fourth inch smaller than left. Oct. 12, foot could be completely dorsally flexed, and child could stand. Nov. 1, could walk, but was uncertain on feet. On 20th, walked quite well, and was discharged on Dec. 15 with all motions returned, though right thigh was slightly atrophied. Was last seen on June 17, 1910, when she could run all about, though she still had an apparent atrophy of the right quad-extensor.

Case 4. B. V., male, age nineteen months. Was first seen on Oct. 5, 1910. On Sept. 26, he was taken sick, with high fever, diarrhea and vomiting; the next morning he had pains through back and left leg, and could not walk or stand up. Was treated by family physician for several days, and the fever and pains in the leg passed off, but left him without the use of his left leg. On examination I found decided loss of power in the dorsal flexors and adductors of the foot, and involvement of the quad-extensor. Notwithstanding the previous treatment, I ordered thorough purgation, etc., and began immediately with cups and massage. The condition remained practically stationary for days, but finally, on Oct. 20, he began to move the toes a little; this encouraged me, and I increased the cupping to one hour and a half; still improvement was extremely slow. On Nov. 10 the quad-extensor began to act slightly. He began to crawl again about Dec. 15, and on Jan. 4, 1911, he could stand up, though he fell on trying to walk. Cupping was continued persistently, and, on Jan. 29, he began to walk a little. I then saw him every other day until April 20, when he could walk quite well, though he still had a slight toe drop and weakness in the quad-extensor which was atrophied. I saw him last on Dec. 20, 1911, and though the quad-extensor had improved, he still had weakness in the dorsal flexors. No contractions and no support is used.

Case 5. G. D., female, age three and one half years, native of Bogalousa, La. Was taken sick on Nov. 18, 1911, and family physician diagnosed anterior poliomyelitis; became paralyzed on morning of 20th, and was admitted to the Pediatric Service of the Charity Hospital that evening. She was seen by Drs. Buterworth, Rice and Wilson, who made the same diagnosis and asked me to see her, after which they referred her to the Orthopedic Service for hyperemic treatment, and through the courtesy of Dr. Fenner she was placed in my charge. I saw her first on Nov. 24, seven days after she was taken sick, and found an apparent paralysis of the left dorsal flexors and quad-extensors and right dorsal flexors, all of which were sore. On admittance temperature was 99.5. Before I saw her she had thorough purgation, urotropine gr. 3., every four hours, and nose sprayed with 50% peroxide in glycothymoline. I ordered strychnia, gr. $\frac{1}{120}$, every four hours, and began cupping for an hour daily. On 29th, soreness had disappeared. Dec. 7, there was slight dorsal motion of right toes; 22d, could dorsal flex both feet, and extend leg. Jan. 3, 1912, she tried to stand up, but was not allowed; 24th, could walk holding to one's hand. Improvement, continued markedly, and cups were discontinued on Feb. 16, when she could walk very well. She was discharged on March 30 with all motions returned and no evidence of paralysis whatsoever. It will be noticed that in Cases 4 and 5 the results were not so satisfactory as in the others: also that the cups were first applied eight and ten days respectively after the onset of the disease; this I attribute to the length of time after the initial attack before treatment was begun, which allowed the inflammation to cause permanent damage to a certain

extent, and to me it emphasizes the importance of beginning this treatment at the earliest stage possible. In Case 5 it will be observed that treatment was not begun until six days after the initial attack and four days after she became paralyzed, but certain measures had been taken before I saw her which I believe aided the hyperemic action.

I do not presume to hold that this treatment will cure all cases of infantile paralysis no matter in which stage it may be applied, but I strongly believe that if it is applied before the fourth day of the attack it will in many instances prevent a paralysis resulting, and in the majority of cases at least insure a useful and serviceable limb.

ACTINOMYCOSIS TREATED WITH VACCINES.

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ACTINOMYCOSIS, as described by Dr. J. H. Wright, is a definite process characterized by destruction of tissue and abscess formation, and by an excessive formation of connective tissue, caused by a specific organism, the actinomyces bovis. A complete review of the whole subject, written by him, is to be found in Osler's "Modern Medicine." The micro-organism causing the disease is an anerobe, and from pure cultures of this organism alone we have made our vaccines.

Actinomycosis appears usually about the head and neck, probably in 50% of all cases, and of the remainder 20% are abdominal and 15% thoracic. In the cervico-facial type the mortality is probably from 25% to 40%. In the thoracic type the prognosis is very bad, only five or six recoveries being reported. The abdominal type is a little less grave, having a mortality of 70% to 80%, and the cases that recover are always those in which the infection is pretty sharply defined and localized.

The treatment up to the present time has consisted of excision or curetting where possible, followed by the use of copper sulphate both internally and locally, and large doses of iodide of potash. In going over the literature, we have been able to find only four cases of so-called actinomycosis which were treated by the use of vaccines. Winn reports a thoracic case in which an abscess of the lung and liver existed. He says: "It is now admitted, there are many forms of actinomycosis, and the significance of the term has been widened to include a class of diseases caused by a distinct species of parasites. Two generic names for this organism are in use, viz., streptothrix and actinomyces. The former name is accepted by British and most American investigators, while the latter is still in use on the continent."

This, and the description of the organism and its cultural characteristics, particularly the fact that it was not an anerobe, leads us to believe that it does not conform to the description as laid down by Wright, or, in other words, is not actinomyces according to the best usage of the term, but rather a streptothrix. Winn made his vaccine from surface agar cultures, taken directly from the pus without attempting to obtain the organism in pure culture. These cultures were dried at 60° for one hour, and the dried surface growth scraped off. This dried substance he called "actinomycotin." The patient received six doses of .001 mgm. of this actinomycotin in all, showed a rise in opsonic index after inoculation and made a complete recovery in three months.

Whittier, in April, 1909, at the meeting of the American Association of Pathologists and Bacteriologists, reported a case of a growth at the angle of the ribs on the left side. An operation was performed and actinomyces found. A vaccine was made from surface growths or bouillon, and there was no attempt made to obtain the organism pure. He also stated that his dosage was from fifty to one hundred million. Because of the character of the growth of true actinomyces in bouillon, it is impossible to standardize vaccines, except in a very rough way. It seems probable that in this case also we may be dealing with streptothricosis, or if actinomycosis, that the cultural growth was some secondary infection and not actinomyces.

Harbitz and Grondahl have studied the subject very thoroughly in Norway. The organism which they have accepted as the causative factor conforms very closely with Wright's description. They used a pure culture vaccine on two cases, with recovery in one and death in the other. Although it is very hard to judge, it seems probable that the vaccine was very much less concentrated than the one which we have used. They report no general reaction, whereas we have found that both general and local reaction might be obtained often with a rather small dose.

METHOD OF PREPARATION OF VACCINE.

Pure cultures are obtained by thoroughly washing separate granules gotten from the pus in five or six changes of sterile, normal salt solution. This is necessary because of the usual secondary infection accompanying the disease. In many cases the secondarily invading bacteria are so numerous and so intimately mixed with the filaments of the granule that it is impossible to obtain the actinomyces in pure culture; but as we have found that the stock vaccine is apparently as effective as an autogenous one, when the organism has once been obtained in pure culture, it can be left growing in the laboratory to be used when needed.

After a number of granules have been thoroughly washed, each one is placed in the bottom of a tube of melted glucose agar at a temperature of about 45° C.

Some may be broken up on the side of the tube, thus scattering the filament through the medium in the hope of obtaining single, isolated colonies; and others, if the secondary infection is not too marked, may be planted whole.

Colonies of actinomyces as a rule do not begin to

show any growth until after forty-eight hours or more at 37° C. When a fine growth is obtained, the single colonies are cut out of the solid medium and transferred to tubes of plain bouillon in the bottoms of which they grow as single, irregular, granular, white, yellow or occasionally brownish-black colonies, with no clouding of the bouillon. For a vaccine, at least a dozen bouillon tubes should be inoculated, and the colonies transferred to fresh bouillon tubes at least every four days. After a week or ten days, the colonies attain a moderate size and are then transferred to a sterile test tube, preferably made of thick glass, in which they are ground up as much as possible. This is most easily done by means of a sterile glass rod over one end of which has been slipped an ordinary rubber nipple. To the ground-up colonies is added a little normal salt solution. The test tube is then drawn out, sealed in the ordinary way, and kept in a water bath at 60° C. for one hour. After sterilization, the contents of the tube are transferred to a bottle containing 50 ccm. of sterile normal salt solution and 1 : 400 lysol or carbolic acid, the bottle being covered with a sterile rubber cap.

It is impossible to standardize such a vaccine except in a very rough way, because the filaments composing the colonies are not evenly broken up. We have used test tubes of approximately the same caliber, filled them for a definite distance with the actinomyces colonies, and added a definite amount of sterile salt solution. Because of the inability to determine the strength of the vaccines, and as it was found that large doses might cause a marked general reaction, treatment was always begun with very small doses, which were generally increased in strength.

The routine method of treatment is to give 0.1 ccm. of the "vaccine" subcutaneously for the first dose. This is repeated every three or four days, increasing the amount given 0.05–0.1 ccm. each time until a dosage of 0.75 ccm. has been reached. A greater amount than this we have only given in one case, when we ran the dosage up to 4 ccm., but with no evident benefit, although the constitutional symptoms were quite severe. Of course, as in all abscesses, if there are any collections of pus, incisions should be made and drainage established.

We have treated or had treated with "vaccines" eight cases of actinomycosis, two with abdominal, two with pulmonary, and four with cervico-facial actinomycosis. The thoracic cases were all advanced when first seen, both showing actinomycotic lesion of the chest wall, and one of them a large indurated area containing pus pockets over one side of the neck. Both these cases grew rapidly worse and died. A very interesting result of the use of the vaccine was the immediate large increase of actinomycotic granules in the sputum. This effect lasted several days.

Of the two abdominal cases, one, after operation and drainage of a large abscess in the left inguinal region, followed by treatment with "vaccine" for two months, has apparently made a complete recovery. The other case was operated upon Nov. 19, 1908, for appendicitis, and an abscess containing actinomycotic granules found. Since March 14, 1909, the patient has been given autogenous actinomyces "vaccine" off and on up to three months ago, when she died following involvement of the lungs. There were periods of apparent improvement, but the results on the whole were not striking, except for the fact that the general reaction was very marked with large doses, and that the patient, before vaccine treatment was begun, was growing worse so rapidly, and the process spreading so fast, that a fatal termination seemed certain in a short time. There was marked improvement at first under vaccine treatment, although at the same time the use of iodides and copper sulphate was stopped.

Of the four cases of actinomycosis of the jaw and neck, three have apparently completely recovered, and one is rapidly improving under that treatment. The improvement in one of these cases was particularly striking. When admitted to the hospital, he had been suffering from actinomycosis of the jaw for over six months, had been treated thoroughly with iodide of potash, and had had numerous small abscesses which had formed, opened and curetted, but in spite of this, the induration had extended down his neck below the clavicle and a short distance beyond the median line to the other side. He was given actinomyces vaccine subcutaneously, and all other treatment omitted. A few days after the first injection, two small fluctuating areas appeared in the neck which were opened and found to contain pus loaded with actinomyces granules, and no other micro-organisms. After this the lesion rapidly softened and diminished in size, and at the end of a month and a half all induration had disappeared. He was given vaccine every three or four days for about three months, and, at the present time, a little over a year after treatment was begun, he is perfectly well and shows no evidence of the disease except for two small scars, the remains of incision made in opening abscesses.

In cases of actinomycosis of the jaw, the starting point is usually a bad tooth, so, of course, the offending tooth should be removed. It is impossible to draw any general conclusion from these few cases, but it does seem that the use of vaccines in superficial actinomycosis does do good. In lung actinomycosis with the severe secondary infection which invariably accompanies it, vaccines are apparently useless.

Clinical Department.

THREE CASES OF PELLAGRA.

BY C. H. DEAN, M.D., NORTHAMPTON, MASS.

SINCE seeing the case of pellagra reported in the BOSTON MEDICAL AND SURGICAL JOURNAL of Sept. 7, 1911, I have seen three other cases, making a group of four. Three of this group were in the Northampton State Hospital. The geographical distribution, however, shows that this is by no means a pellagrous center. One case

developed six months after admission and came from Worcester. One, the first case recognized, came from North Adams and presented gastric symptoms on admission. One case came from Amherst, and the erythema and gastric symptoms were present on admission. Another case, seen in the Northampton Almshouse, came with well-developed symptoms from Springfield.

For permission to report the three hospital cases I am indebted to Dr. J. A. Houston, Superintendent of the Northampton State Hospital. For the opportunity to see and permission to report the almshouse case I am indebted to Dr. Osmyn Baker, city physician of Northampton. I will present here only the three subsequent cases in the order of their observation.

CASE II. A. C., male, married, age forty-nine, painter, was seen July 20, 1911, at the Northampton Almshouse. Three days before he had come from Springfield. He had worked till about four weeks before, when he developed an erythema on the backs of the hands, and a marked stomatitis.

When seen there was a well-marked symmetrical erythema on the backs of the hands extending down to the first phalangeal joints. The upper border extended around the wrist, but was not so sharply defined. There was a noticeable desquamation over the backs of the hands and extending into the palms, though the erythema did not appear there. Between the fingers the skin was macerated and small ulcers were observed. There was a tendency to fissure, especially over the joints. On the forehead, cheeks and back of the neck a similar erythema with more or less sharply defined borders was observed. This had been present for about three weeks. There was no other eruption.

The mucous membrane of the mouth was much inflamed. The tongue was thick and fissured and showed indentation by the teeth. There was marked salivation, and his mouth was exceedingly foul. He had not been vomiting, but he had suffered a severe diarrhea for three days. He gave no luetic history, but from the appearance of the mouth a tentative diagnosis of syphilis had been made some weeks before, and he had been given mercury. The stomatitis and salivation had preceded the administration of the mercury.

He was again seen on Aug. 2. The erythema had continued on the hands, but was disappearing from the face. There was now an erythematous area about the anus. The diarrhea had increased and he had recently been vomiting. The stomatitis had not improved and it caused great discomfort. His general condition was much worse, he had become greatly emaciated and there were mental symptoms. He talked of the devil pricking him with a fork. He continued to fail, he became greatly prostrated and his mind was a blank. He died on Sept. 2, 1911.

CASE III. M. C., female, single, age thirty-six, nurse, was admitted to the Northampton State Hospital from Worcester on Jan. 31, 1911. She was experiencing active hallucinations of hearing and she entertained well-defined delusions of a persecutory nature. In February, 1910, she had suffered an attack of grippe and had made a slow recovery. During the remainder of the year she suffered marked mental tire and depression. She developed delusions of poisoning and refused food. No history of gastro-intestinal symptoms could be obtained. While under observation here she was considered a case of the maniacal form of manic-depressive insanity.

Early in August, 1911, she was observed to have developed an erythema on the backs of the hands, which was at first believed to have been sunburn. The erythema was symmetrical and did not extend above or below the metacarpals. The border was sharply defined. The skin was a shiny red, with a darker area along the border. During September the erythema extended a little higher and around the wrist and down to the first phalangeal joints. The lesions were symmetrical, with well-defined borders and some tendency to desquamation. There was no stomatitis or other gastro-intestinal disturbance. The lesions improved slowly, and the skin was fissured, dry and parchment like when she was taken home by her people on Jan. 15, 1912.

The belief that this was a case of pellagra suggests the suspicion that the languor and depression during 1910 were due to the pellagrous toxemia and that the delusions of poison and the refusal of food were really dependent on an alimentary disturbance which did not develop more marked symptoms.

CASE IV. A. L., male, married, age sixty-four, farm hand, was admitted to the Northampton State Hospital from Amherst on April 27, 1912. He was practically moribund on admission. For four months he had been depressed and melancholy. Shortly before admission he had become confused and agitated and was brought to the hospital under the influence of sedative drugs. He did not regain consciousness at any time. As the effects of the drugs passed off, he became restless and kept his hands tightly clinched on whatever he could grasp. There was some vomiting and an increasing diarrhea. The mouth was foul, the tongue was thick and flabby and the mucous membrane of the mouth was much inflamed.

On the backs of the hands was observed a symmetrical, well-marked erythema extending from the carpal to the first phalangeal joints. There was no other skin lesion.

From the family it was learned that he had suffered severe digestive disturbance during the summer of 1911 and to some extent in 1910. The skin lesion had been observed during the past winter, but not before. He failed steadily, the head was thrown rigidly back, but there were no convulsions. There was considerable difficulty in swallowing and he had to be given food by means of the nasal tube. He died on May 2, 1912.

It must be admitted that these three cases would probably not have been recognized but that the earlier case presented such well-marked symptoms that a diagnosis was possible. Then, with the characteristic features brought more forcibly to our attention, we were able to recognize less marked cases. It is possible that still earlier cases may have been overlooked, but so far a review of our case records has failed to reveal them.

Reports of Societies.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

ONE HUNDRED AND SIXTH ANNUAL MEETING, HELD IN ALBANY, APRIL 15–18, 1912.

(Concluded from No. 2, p. 60.)

RECIPROCAL RELATIONS OF CARDIAC AND HEPATIC DISEASE.

By ALFRED STENGEL, of Philadelphia. In cardiac disease the hepatic changes were of three types: (1) passive congestion, or nutmeg liver; (2) cholangitis;

(3) fibroid perihepatitis. In the early stages the liver acted as a reservoir of the blood for the heart, a conservative function, but in the end it interfered seriously with the heart's action. Toxemia, due to impaired hepatic function, affected the heart and sometimes occasioned degenerative changes, and pent-up infection in the gall bladder, by the toxemia and reflex irritation of the vagus produced, might also cause cardiac manifestations.

FURTHER STUDIES ON ENDOCARDITIS.

By Dr. E. C. Rosenow, of Chicago. The microorganism, sometimes known as the saprophytic streptococcus, to which malignant endocarditis was due, was quite commonly to be found in other conditions also. He believed it to be a modified pneumococcus, perhaps originating in the tonsil, where it was normally present. To animals it was non-virulent, in the ordinary sense of the term, yet in the human subject it appeared almost invariably to destroy life. In rabbits it was capable of producing endocarditis, affecting chiefly the valves and *chordæ tendineæ*. He had succeeded in causing this result in 18 out of 25 instances, by intravenous inoculation, and specimens of rabbits' hearts exhibiting the lesion were shown. In one patient with malignant endocarditis he had isolated the specific organism over fifty times. He observed that when the temperature was low, the number of colonies per cubic centimeter of blood was low, and when the temperature was high, the reverse of this was true. Moreover, when the temperature was low, the bacteriolytic activity of the blood was increased and the phagocytic power normal. This indicated to him immunity of the bacteria to the host's immune bodies, and explained why these patients could not, as a rule, be cured. Vaccines, as administered by him, had simply done harm, causing chills and an increased number of bacteria in the blood. The chills indicated that the system had succeeded in destroying a large number of the organisms and had liberated a large amount of toxic material.

Among the other papers in the Section on Medicine were the following: "The Significance of an Acid Gastric Juice in the Fasting Stomach," by Dr. Harold Barclay, of New York; "Relative Value of Air, Food and Rest in the Treatment of Pulmonary Tuberculosis," by Dr. Lawrason Brown, of Saranac Lake; "Syphilis of the Stomach," by Dr. Jerome Meyers, of Albany; "The Value of Digitalis and Arsenic in the Treatment of Pulmonary Tuberculosis," by Dr. A. Jacobi, of New York; "Rice in the Dietary of the Diabetic," by Dr. Heinrich Stern, of New York; "Use of Bouillion Cultures of the Staphylococcus Pyogenes Aureus as a Spray in Diphtheria Convalescents and Bacillus Carriers," by Dr. R. G. Wiener, of New York.

Section on Surgery.

SURGERY OF THE BATTLEFIELD.

By Surgeon-General George H. Torney, U. S. A. He detailed some of the changes in surgical methods which the modern reorganization of armies had necessitated. The system employed on the battlefield provided for three divisions, — collecting, dressing and distributing, — and the first aid and dressing stations were within rifle range. In modern warfare an enormous number of wounded had to be cared for within a short space of time, and he described and illustrated with lantern slides the work of handling this great number. In the future, he said, surgery on the battlefield would have to be limited to emergency cases.

THE TREATMENT OF SIMPLE FRACTURES BY THE OPEN METHOD.

By Dr. John B. Walker, of New York. Operative procedure, he said, was especially indicated in certain cases because the resulting disturbance of function was less than when the non-operative method was employed. Among these were fractures of the patella and olecranon, articular fractures with displacement of the head and fractures of the carpal scaphoid with displacement of the proximal fragment. Other varieties of articular fractures should at the earliest moment be examined under anesthesia, reduced, fixed and radiographed, after which the advisability of operation should be carefully considered. In general, the open method might be said to be applicable to fractures of the upper and lower thirds of long bones and to joint fractures. The advance in opinion concerning the subject was shown by the fact that when some years ago it was put to vote in a certain body of surgeons, 85% favored the closed method, while recently, in a similar body of surgeons, 85% favored the open method. The paper was illustrated with lantern slides showing cases and results.

THE TREATMENT OF SIMPLE FRACTURES BY THE CLOSED METHOD.

By Dr. J. M. Hitzrot, of New York. The reason why results were unfavorable in so many instances, he said, was because either the patient was negligent or the surgeon incompetent. He believed that in most cases results as good as by the open method, if not even better, could be secured by the closed, provided the surgeon possessed sufficient knowledge of mechanical forces and practical skill. The latter method was certainly less dangerous, as it avoided the risk of infection, and it was by no means as limited in application as many seemed to believe. A considerable part of the paper was taken up with the description and discussion of procedures in various types of fracture.

LATERAL CURVATURE OF THE SPINE.

By Dr. Walter Truslow, of Brooklyn. A distinction was to be made between functional weak back and structural scoliosis. The former was due chiefly to lack of muscular vigor, and the treatment indicated consisted of proper training in the way of posture, appropriate exercises and muscle building; while if the condition should not be remedied by these measures, mechanical support was called for. In structural scoliosis it was necessary to apply force to reduce the deformity, and then maintain the correct position by means of a plaster-of-Paris jacket. Heretofore, pressure and traction on the thorax had been practiced while the patient was in the extended posture, but last year Abbott had succeeded in securing greater correction with the spine flexed. To-day much hope in the solution of this difficult problem was felt in the plan of frequently applied corrective plaster jackets, a method depending upon progressive untwisting of the spine and the use of chest-developing fenestræ at the sites of thoracic depression.

OPERATIONS IN POTT'S DISEASE.

By Dr. Russell A. Hibbs, of New York. In the operation which he had devised the main points were the preservation of the periosteum and the prevention of hemorrhage. The first was accomplished by a median section of the membrane through to the bone on both the superior and inferior aspects of the spinous processes; the second, by a scrupulous avoidance of any separation between the muscles and the periosteum. The periosteum was pushed back without the slight-

est tearing, and this produced an almost continuous periosteal layer on either side; constituting, when closed, a periosteal tube which would develop adequate bone tissue whether the denuded fragments were included in the tube or not. It was desirable to strip the periosteum out over the laminæ to the base of the transverse processes, because the laminæ lay very close together and, in consequence of this detail of technic, a fusion took place between them which, with the bridge made by the spinous processes transposed, secured a fusion of the vertebræ from the transverse processes on one side to those of the other. It had been customary to break the spinous processes at their base, placing them in regular sequence, the apex of one leaning against the base of the next. Included in this bridge were one or two healthy vertebræ above and below, as well as the spinous processes of the diseased vertebræ. The fragments were held in position by chromic gut sutures, and the periosteal tube closed about them. The results of this procedure had thus far proved very satisfactory, and in three of his cases the operation had been done as long ago as one year.

INTESTINAL INJURIES DUE TO ABDOMINAL CONTUSIONS.

By DR. GILBERT D. GREGOR, of Watertown. He claimed that such injuries were of more frequent occurrence than was generally supposed, many of them being simply diagnosed as internal injuries. The most frequent mechanism was in the nature of a blow-out, instead of crushing and tearing of the bowel between two contusing forces, the elements entering into such blow-outs being high velocity and small point of impact, surprising the abdominal muscles and causing an inflated condition of the bowel. In diagnosis the primary shock was to be disregarded, but shock continuing or developing after four or five hours, or increase in the pulse-rate at that time, associated with increasing abdominal pain, vomiting and a ridged abdominal wall, constituted sufficient evidence to warrant an exploratory operation.

INTRATRACHEAL INSUFFLATION ANESTHESIA; ITS VALUE IN THORACIC AND IN GENERAL SURGERY.

By DR. CLARLES A. ELSBERG, of New York. After showing that none of the procedures usually resorted to in order to render operation within the chest possible were even relatively safe, and after giving the history of the various positive and negative pressure cabinets that had been devised for this purpose, he spoke of the work of Meltzer and Auer, of the Rockefeller Institute, which had led to the method of intratracheal insufflation. Meltzer and Auer discovered that the ventilation of the alveolar air could be accomplished through a continuous stream of air passing in one direction, instead of the double movements in opposite directions; they found that if they passed a tube through the larynx of a dog and down the trachea almost to the bifurcation, and blew air through this tube in a continuous stream, the animal could be kept alive, for many hours even, after all voluntary respiratory movement had been paralyzed by curare. By allowing the stream of air to pass over the surface of ether in a bottle, they were able to anesthetize the animals very satisfactorily, and it was found possible to open both sides of the thorax widely and yet have the animals remain alive for a number of hours. The air and ether mixture was blown in at a pressure of 15 to 20 mm. of mercury. The only condition for success was that the tube should be of a size less than one half the diameter of the glottis, so that the stream of air and ether which passed up the trachea in a continuous stream might have a free escape. Later it was found of advantage to interrupt the stream six or eight times a minute. The apparatus was simple and portable. It consisted of a foot-bellows connected by tubes with a bottle containing ether and a mercury manometer, the tubes being so arranged that more or less of the inblown air passed over the surface of the ether and became saturated with ether vapor. After having proved that this method was satisfactory in animals, the speaker had endeavored so see if it was applicable to human beings. It was preferable to anesthetize the patient first and then to introduce the tube. He had found some patients in whom the tube could not be introduced through the larynx because the tip of the epiglottis could not be reached with the finger as a guide. He had since made use of the Jackson laryngoscopic introducer, and had never met with much difficulty. An ordinary silk-woven ureteral catheter, with a lateral opening near its end, was to be used, and one should always be sure that the tube was in the trachea, and not in the esophagus. Spasmodic cough was good proof that it was in the right channel. The pressure in the manometer should be kept at about 20 mm. of mercury, and the current interrupted three to six times a minute. In almost 500 operations under insufflation anesthesia no bad after-effects had ever been observed. This form of anesthesia was valuable in other than intrathoracic operations, notably in intestinal obstruction, as it entirely did away with the danger of aspiration of vomited matter and of bronchopneumonia. As a continuous stream of air was passing out through the trachea, no vomited material could be aspirated. It was especially well borne by weak and cachectic patients. The method was of extreme value in operations on the head and neck because the anesthetist could be a number of feet away from the operative field. It was valuable in operations upon the mouth and jaw, for, as the tube was never in the way of the operator, one need have no fear from the blood that ran down the throat. The same advantages applied to the operations of laryngectomy, laminectomy and bilateral craniotomy. With this method the danger of pneumonia seemed to be avoided entirely. Dr. Elsberg had performed a number of operations of the kinds referred to, and the results had been thoroughly satisfactory. The method was absolutely efficient in preventing collapse of the lungs in intrathoracic surgery, and the simplicity of the apparatus made it possible for every surgeon to employ it. The esophagus, aorta, trachea and main bronchi could be exposed. He had performed fourteen intrathoracic operations under intratracheal insufflation with entire satisfaction. Finally, he called attention to the value of insufflation as a method of artificial respiration. At Mount Sinai Hospital the method had been successfully employed for this purpose on more than forty patients.

SURGICAL ASPECTS OF CONSTIPATION.

By DR. SAMUEL G. GANT, of New York. After defining surgical constipation or obstipation, he said that while atonic constipation and the forms of acute and chronic intestinal obstruction which destroy or greatly endanger life were frequently discussed, obstipation of a lesser degree which impedes the fecal current and delays the evacuations without causing other manifestations than those due to fecal retention rarely attracted attention. He maintained that no less than 50% of the patients which he treated for constipation suffered from the surgical variety, and expressed the opinion that in 25% of all cases of costiveness the trouble was due to mechanical defects in the bowel. The curing by operative measures of a number of patients who had previously been unsuccessfully

treated for habitual constipation had convinced him that surgical constipation was frequently mistaken for the latter. Mention was made of the many points of difficult passage for the feces between the cecum and the sphincter ani, and it was shown how slight distortion of the bowel might result in delayed or irregular evacuations. Having enumerated thirty-five pathological conditions, any one of which was sufficient to induce surgical constipation, he said that in his experience there had less often been a single cause than multiple causes to account for the obstipation, and that frequently the patient suffered from both atonic and surgical constipation, under which circumstances both an operation and subsequent treatment to tone up the bowels were necessary to effect a cure. In endeavoring to reach a diagnosis, he had found it advisable to ascertain the duration of the costiveness and whether the patient had previously suffered from typhoid fever, peritonitis, ulcerative colitis or other affection which might have led to adhesions, stricture, angulation, or twisting of the gut. Obstipation was classified as rectal and abdominal and it was pointed out that the blocking was very much more frequently located in the former then in the latter region. Abdominal constipation could as a rule be diagnosed by palpation and percussion, with or without the aid of inflation, and when pressure was made over the block the patient usually intimated that there was the seat of his trouble. In obscure cases, however, the x-ray or exploratory incision was required to define the lesion. Dr. Gant maintained that when the obstruction was located in the lower sigmoid or the rectum there was no excuse for a mistaken diagnosis, because it could be inspected through the sigmoidoscope or felt with the finger. When the impediment was situuated in the abdomen, two or three quarts of water were required to secure an evacuation, but a pint, or less, would suffice when this was in the rectum. In abdominal constipation the chief discomfort was that incident to gas retention, while in rectal obstipation the discomfort was due to sensations of weight and fullness and frequently an irresistible desire to empty the bowel. Obstipation was strictly a surgical condition, and drugs and the physical therapeutic measures commonly employed in the treatment of atonic constipation were useless, except when made use of subsequently to operative interference for the purpose of restoring tone to the gut. Of the 500 patients treated by him surgically for constipation, the majority had been permanently cured, and many others were greatly improved, while 10% had received no benefit. With the exception of cancer and stricture, the larger number of rectal impediments responsible for constipation were simple in character and capable of correction under local anesthesia, while the lesions which most often caused abdominal constipation could be eliminated with but little danger under general anesthesia. After briefly describing the operations indicated in the various conditions producing surgical constipation, the speaker, in conclusion, emphasized the prevalence of chronic obstipation its comparatively easy diagnosis, and the remarkably good results following its surgical treatment.

Among the other papers in the Section of Surgery were the following: "Suprapubic Prostatectomy," by Dr. Paul M. Pilcher, of Brooklyn; "Cancer of the Prostate," by Dr. Eugene Fuller, of New York; "Rupture of the Kidney in Children," by Dr. C. L. Gibson, of New York; "Indications for Operation in Gastric and Duodenal Ulcers," by Dr. G. C. Madill, of Ogdensburgh; "Surgery of the Bile Ducts," by Dr. John B. Deaver, of Philadelphia; "Wounds of Naval Warfare," by Surgeon-General Charles Stokes, of the United States Navy. On the last day of the meeting,

Thursday, April 18.

a joint session of the Sections on Medicine and Surgery was held, at which there were two symposiums. The first was a

SYMPOSIUM ON POLIOMYELITIS,

which was largely based upon recent experiences (clinical and pathological) in the Hospital of the Rockefeller Institute for Medical Research. It was opened with the following papers: "Pathology," by Dr. George Draper; "Symptoms, and Difficulties and Possibilities in Early Diagnosis," by Dr. R. F. Kennedy; "The Acute Stage," by Dr. F. W. Kennedy; "Medical Treatment," by Dr. David E. Hoag; "Prevention and Correction of Deformities by Mechanical Treatment," by Dr. W. R. Townsend; "Surgical Treatment," by Dr. H. L. Taylor. All the writers were from New York. The second was a

SYMPOSIUM ON PERVERTED THYROID FUNCTION,

and was opened with the following papers: "Pathology," by Dr. W. C. MacCarty, of Rochester, Minn.; "Symptomatology," by Dr. George Dock, of St. Louis, Mo.; "Atypical Types," by Dr. Alexander Lambert, of New York; "Medical Treatment," by Dr. S. S. Beebe, of New York; "Surgical Treatment," by Dr. M. B. Tinker, of Ithaca. The

OTHER SECTIONS

of the society organized this year were on Diseases of the Eye, Ear, Nose and Throat; on Mental and Nervous Diseases; Eugenics; and Medical Expert Testimony; and on Public Health and Preventive Medicine. In each of them a long list of papers was read, and on April 17 a joint session of the Eye, Ear, Nose and Throat Section was held with the Section on Medicine, at which there was a

SYMPOSIUM ON VERTIGO,

which was opened with the following papers: "Vertigo from the Standpoint of the General Practitioner," by Dr. Charles G. Stockton, of Buffalo; "Vertigo Due to Lesions of the Central Nervous System," by Dr. Joseph Collins, of New York; "Labyrinthine Vertigo," by Dr. P. D. Kerrison, of New York; "Vertigo Due to Middle-Ear Disease," by Dr. J. F. McKernon, of New York; "Vertigo Due to Ocular Causes," by Dr. Percy Fridenberg, of New York.

Book Reviews.

Gynecological Nursing. By Arthur E. Giles, M.D., B.Sc., F.R.C.S., M.R.C.P. With 41 illustrations. New York: Willaim Wood & Co. 1912.

This book, which represents the author's lectures to nurses at the Prince of Wales' General Hospital, Tottenham, London, aims "to give to nurses who are engaged in this branch of work sufficient information about the organs concerned, and their diseases, to make their work intelligible and interesting, without giving such details as would be suitable only in a book on gynecology." To this prefatory promise the text is consistently faithful. The details are of course adapted to the methods and technic of English practice, but the principles are sound. The most noteworthy

thing in the book is the introductory description of the perfect gynecologic nurse. If this be truly drawn from life, the writer is to be congratulated on his unique experience, or else perhaps he looked with eyes of more than dispassionate observation.

Blood Vessel Surgery and its Application. By A. C. GUTHRIE, M.D., Ph.D. With 158 illustrations. New York: Longmans, Green & Co. 1912.

Guthrie's book on Blood Vessel Surgery is an admirable treatise on a comparatively new branch of surgery, and the author deserves credit for the completeness of his work and for the systematic manner in which the subject is treated. The chapters on technic contain many excellent illustrations which admirably summarize the text. The question of coagulation of blood, hemolysis, vascular histologic changes in transplanted vessels and tissues, effects of anemia and hyperemia, internal secretions of the thyroid and other glands are carefully discussed, and while the author is careful not to commit himself to any positive conclusions in treating these subjects, he gives a most satisfactory review of each subject in point and summary of the latest views and work on each.

The book advances nothing new to one familiar with blood vessel work, but should be a valuable book of reference for surgeons and an inspiration to the beginner in this particular field.

Urology. The Diseases of the Urinary Tract in Men and Women. A Book for Practitioners and Students. By RAMON GUITERAS, M.D. (Harv.). With 943 illustrations in text and seven plates. Vols. I and II. New York and London: D. Appleton & Co. 1912.

This book in two large volumes, and comprising some 1,400 pages, considers at length the diseases of the urinary tract, both medical and surgical, and in both sexes. As the genital tract in the male is so intimately associated with the urinary organs the diseases to which its organs are liable have been very properly included in the scope of this book. On the other hand, the genital organs in the female are so distinct anatomically from the urinary tract that the genital diseases in the female, which do or should represent the scope of gynecology, are very properly deemed inappropriate for this work. The writer has adopted a most excellent plan for his book, making the early chapters deal with general questions and problems connected with urology, and so leading up to the detailed study of the clinical conditions of the various organs considered. For example, there are excellent, carefully written chapters on anatomy, analysis of urine, of various pathological discharges and of the blood. Detailed description is given of the equipment necessary for a specialist in urology. His office is considered in detail. His instruments are selected carefully and are sterilized for him. Two chapters are devoted to urethroscopy and cystoscopy, and other chapters to methods of examination and history-taking, to general symptoms and conditions such as urinary fever, metabolic upsets, and to general points in anesthesia and in the therapeutics which pertain especially to the field of urology. All this comes before the more essentially clinical and operative portion of the book, beginning with the kidney and its ailments, is developed. The next dozen chapters, which end the first volume, are devoted to the kidney and ureter, and contain, among others, excellent chapters on non-suppurative nephritis and uremia — subjects which, in a book dealing with conditions of necessity so largely surgical in character, would not always receive such adequate notice.

Volume II deals in turn with diseases of the bladder, prostate, urethra, penis, scrotum and testis, and the concluding chapter on syphilis is a brief summary of the history and description of the disease with its traditional and present-day treatment.

The work is a large one, well done, and its writer is to be congratulated from many points of view. He has made his book, in the first place, a carefully prepared, adequate and up-to-date work on genito-urinary surgery, and in addition he, himself a surgeon by inclination and rich experience, has succeeded in giving medicine a place of real, if not entirely adequate, importance in the scope of the book, — a feat which is difficult and not commonly accomplished. He has, for example, considered the medicinal, climatic and hygienic phases of the therapy of tuberculosis with the same careful completeness which he gives to his description of surgical technic.

The book is well printed, is illustrated with a profusion of good plates, photographs and drawings, and its clinical and therapeutic descriptions are carried out with a completeness and care which will make the book a valued work of reference, both for the specialist and for the practitioner of surgery and medicine. For the student of medicine it is equally valuable, although, because of its size and cost, it is not quite so available.

Aids to Histology. By ALEXANDER GOODALL, M.D., F.R.C.P. Edin. New York: William Wood & Co. 1912.

This little manual in the Students' Aids Series should be of great value and comfort to many medical students in their early days of tribulation. The beginner in histology is usually bewildered and overwhelmed by the hopeless complexity of the profuse scientific textbooks to which he turns for help, and which give him stones of erudition instead of the bread of knowledge which he craves. This book contains in compact and intelligible form the essentials of the subject, but at the same time entirely avoids the vicious and perniciously glib superficiality of the average "quiz compendium." That is because it is written not by a man who merely wishes to purvey factitious information to lazy students in dread of examination, but by one who really knows his subject and desires to teach it.

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PROGRESS OF THE PLAGUE IN PORTO RICO.

In the issues of the Journal for the past three weeks we have noted the appearance of a moderate outbreak of bubonic plague in and about the city of San Juan, Porto Rico. Though immediately taken in hand, this limited epidemic has spread to some extent, and has occasioned the adoption of rigorous preventive measures. Up to July 11 there had been in Porto Rico 34 cases and 22 deaths of the disease. Of these cases, 25 occurred in the old part of San Juan, 6 were in the suburb of Santurce, 2 in Carolina, a town about 15 miles distant, and one at Arroyo on a small schooner from San Juan.

It was early discovered that the rats of the vicinity were infected, and vigorous measures were undertaken for their destruction. On the request of the governor of Porto Rico the work of plague eradication was undertaken by the United States Public Health and Marine-Hospital Service in co-operation with the local sanitary authorities. Dr. R. H. Creel has been placed in immediate charge of the laboratory and field work. Officers have been detailed for plague duty in Porto Rico, and additional officers are on their way to San Juan.

In the weekly public health report of the Service for July 5, the work being done in Porto Rico is described as follows:

"The work being carried on includes the limitation of the disease to the island of the old city of San Juan. Measures are being taken to prevent the escape of rats across the bridges and also to prevent the possibility of their gaining access to vessels. The city has been divided into districts, and the houses in the infected territory are inspected daily. Infected houses are surrounded by rat-proof fences and then disinfected and freed from rats or destroyed. Special attention is being paid to the care and collection of garbage and other material which may serve as rat food. Steps are being taken toward the rat proofing of the entire water front. Trapping and poisoning of rats is being done. Special attention is being given to the laboratory examination of rats caught in parts of the city not known to be infected, in order to outline definitely the infected areas."

To meet the added expense of this work the legislative appropriation for the prevention of epidemics has been increased from $100,000 to $500,000.

Meantime, on July 3, two cases of bubonic plague were reported at Havana, in Cuba, both of which have since died. Several other suspected cases are under observation in that city, though none has been proved to be a genuine plague infection. Immediate measures were taken for the catching and killing of rats.

"So far five hundred rats have been killed and examined in the infected district of Havana, Cuba, but no plague has been found in them. Rat guards have been ordered upon all steamships in Havana Harbor; loading in the open bay will be done in daylight and vessels touching at other Cuban ports will be disinfected by the Cuban authorities. All ships will be fumigated at least once a month."

At Santiago, Cuba, one supposed case of bubonic plague was discovered on July 9 and placed in quarantine under observation. No cases have been reported from other parts of the island.

To prevent further spread of the disease, all vessels clearing from Porto Rico for other ports in United States territory have been made subject to a strict outgoing quarantine, which is being maintained with the assistance of the revenue cutter *Algonquin*. Similar provisions have been extended to all vessels sailing from Cuban ports.

"Orders went to Havana to commence thorough fumigation of all vessels bound for United States ports. Immediately after the discharge of cargoes, all rats will be destroyed and the vessels prohibited from going to or lying at the docks or wharves there. The freights will be inspected and certified on bills of health. No crews are to be shipped in Havana and no shore liberty will be allowed crews there. All passengers at Havana will have to be certified individually prior to their departure for this country, showing that they have not resided in the infected districts for seven days. Otherwise they will be detained seven days in Trisconia, the old

detention camp near Havana. Key West and New Orleans will carefully inspect passengers and crew and fumigate vessels against rats until the officials are notified that the precautionary measures are being carried out in Havana."

Meanwhile, at every United States seaport on the Atlantic coast and in the Gulf of Mexico strict precautions are being observed to prevent the entrance of plague infection. Report from Mexico City on July 12 states that —

"The Mexican Government has declared all except first class ports on the gulf seaboard closed to ships from Porto Rico, Cuba and Trinidad, to prevent the bubonic plague from gaining a foothold in this country. At the three ports of the first class, Progresso, Vera Cruz and Tampico, ships from ports said to be infected are being placed in quarantine for five days and special precautions taken to prevent rats from leaving the vessels."

At New Orleans, La., Dr. John H. White, of the Public Health and Marine-Hospital Service, has proposed to the municipal and state authorities the making of a rat survey along the Mississippi River front.

"Dr. White's plan is to have the river front divided into districts. Tests will be made upon rats captured in each district. Should any rodents be found to be infected, efforts to exterminate them will be concentrated upon the districts from which the infected rats were taken."

At Moblie, Ala., the city authorities have offered to pay five cents a head for all rats killed in the neighborhood of the docks. At Norfolk, Va., a similar bounty has been offered, and six official rat-catchers have been appointed by the local health commissioner.

At the port of New York rigorous quarantine measures have been adopted towards all vessels arriving from known sources of infection.

"Over one thousand pounds of sulphur were burned in the hold of the steamships *Saratoga*, from Havana and the *Caracas*, of the Red D Line from San Juan, as they lay off the Statue of Liberty with the yellow quarantine flag flying. It is estimated that thousands of rats, which may have been exposed to the plague in West Indian ports, were killed by the sulphur. A few of the rats were caught and sent to the quarantine station for expert examination. Similar precautions are taken with all vessels from the West Indian ports."

At Boston similar measures have been initiated. It has been decided to compel all vessels from Porto Rico, Cuba, San Domingo, the West Indies and Mediterranean ports to unload their cargoes on lighters at quarantine. Both cargoes and vessels will then be disinfected, and the former taken to rat-proof warehouses. The first ships to be disinfected were the schooner *Frank B. Witherbee*, which arrived recently from Aquidillo, P. R., and the steamer *Sylvia* with a cargo of sugar from Havana.

"The work on each ship will take twelve hours, that time being considered sufficient to kill all the rats on board. Two pounds of sulphur will be burned in pots for every 1,000 cubic feet of space in the holds and compartments of the ship. The work will be done while the vessel is in midstream to prevent the rats running along hawsers to the piers.

"Sulphur as a fumigating agent has been decided upon by the health authorities as being the most practicable means of killing the rats. Carbon monoxide gas, while far more satisfactory than sulphur fumes for the work in regard to efficiency, is not safe to handle. Special machinery to force the gas into the holds of the ship has to be used by the fumigators. It is more expensive and, owing to the impossibility of detecting its presence, is very apt to result in fatalities among the crew of the vessel after it is supposed to have been driven out of the holds. The same objections hold in regard to illuminating gas, with the added danger of ignition and explosion."

It is interesting to consider thus in detail the measures adopted to prevent the extension of a serious infection, since upon their promptness and efficacy depends the security of continental United States from invasion by a grave epidemic. The present outbreak in Porto Rico and Cuba is trivial in its extent, because it has been properly dealt with from the outset; but it contains all the possibilities of a menacing and destructive pestilence. The present instance is a gratifying example of the alert vigilance of national and local health authorities, and illustrates the beneficent power of modern preventive medicine working under the enlightenment of adequate and accurate scientific knowledge.

THE BRITISH NATIONAL INSURANCE ACT.

DURING the past winter we have from time to to time commented editorially upon various aspects of the British National Insurance Act, and upon the efforts made by the medical profession to prevent its adoption. Immediately after its original passage by Parliament, the British Medical Association organized a determined protest against the measure, and sent to the Commissioners "a communication in which were

set out the terms whereby, and whereby alone, the members of the Association were prepared to work the Act." To this reply apparently an evasive and unsatisfactory reply was made; and after much debate and negotiation, the Act finally went into force on July 15 in practically its original form.

As a matter of fact, the situation seems to be in a considerable muddle, and it is doubtful if any one thoroughly understands it, or if any one knows or can tell just how the Act will work in practice. It may be fraught with vast possibilities of good or ill, whose extent nothing but experience can determine. At our distance in America, without knowledge of local conditions, it is still more difficult to form an accurate judgment of the merits or demerits of the Act. Naturally we are disposed to accept the opinions shared by the majority of physicans in England. In the issue of the *Lancet* for July 6 is an exceedingly temperate and liberal editorial statement of the attitude of the profession towards the entire matter, from which we cannot do better than quote in part.

"The working of the Act proposes to provide for the medical needs of about one third, at a moderate estimate, of the population to which it refers; and the claim is also made that the medical benefits, provided in return for contributions from the State, the insured, and the employers, shall be of the very best attainable. Such a claim must have enormous influence upon the future of medicine, not only upon the material prospects of those who live by its practice, but upon the progress of the science which is thus called upon, at a short notice and in many novel and incomprehensible ways, to display itself in the finest manner both in preventive and curative directions. Rightly managed, such a scheme would be a grand incentive to every branch of our calling.; wrongly planned, it may involve the public and the medical profession in disaster. Many times as these and similar things have been said, they must be said again, for it is perfectly obvious that those in whose hands the discretion now lies, despite certain vigorous protestations on political platforms and in debates, do not appreciate the seriousness of the position.

"The medical profession is still in doubt as to the position which it occupies under the Act; hospitals are still in fear as to the strain which may be unduly thrown on charitable resources; and those in whose hands the education of our young men lies, or to whose final developments of scientific work we look for our indications of future progress, are caught in the perplexities which surround them. All interested in medicine pointed out, when the measure first appeared, that the proposed administration of medical benefits was faulty; redress has been freely promised, but has not been forthcoming; and to describe unwillingness to work the Act as mere greed, or as some form of treason, is silly.

"Of course, if we, the medical profession, were the literal and salaried servants of the State, and if, an Act of Parliament having enjoined upon us certain duties, we replied that we would not discharge them, then an accusation of rebellion would be justifiable. But the medical profession is not in that position at all. The medical profession is not a State service, but is the servant of the public, and every member of it from top to bottom is desirous of doing his best to promote the very things for which the National Insurance Act stands, — namely, the immediate alleviation of misery and the permanent amelioration of the race. The unwillingness of the medical profession to work the Act is not an example of resistance to a law that is unpleasant, for the purposes of the the law are largely our own ideals. The medical profession simply awaits the fulfilment of the promises that the conditions for the administration of medical benefits should be made fair. There are many indications in the Act as it stands that the alleviation of misery will be partial, and that the amelioration of the race will be, at any rate for some time, illusory. The demands of the medical profession are designed to remedy these defects. If those who are to minister to the medical needs of the country are so treated that their services must often be offered in a manner not only unsatisfactory to themselves but inadequate to the public needs, the welfare of the community will not be advanced. A united determination to obtain from those to whom the working of the Act has been entrusted some more satisfactory terms than are at present offered is only reasonable. The Act offers medical benefits in name; the medical profession desires to supply them in reality. This cannot be described as anarchical."

Obviously the situation is one of considerable seriousness and importance, perhaps "the most critical phase in the history of medicine." Nothing but time can now determine how it will develop and eventuate. We may some day have to face a similar situation in the United States. For this reason, as well as for our cordial interest in the welfare of the medical profession in England, we shall watch with especial earnestness the results of this Britsh experiment.

PREVENTIVE MEDICINE AT ANCON.

In the issue of the *Nation* for June 13 is an excellent article on "Hospital Work at the Canal Zone," describing Ancon Hospital and the noteworthy accomplishment in public sanitation and preventive medicine on the Isthmus of Panama by Dr. Gorgas and his associates of the United States Army Medical Corps. The story of this

achievement is familiar, but none the less creditable, and like others of similar nature, bears repetition for the sake of its example and of reiterating deserved praise.

"The Isthmus of Panama, before the Medical Corps of our army took it in hand, was one of the deadliest pest-holes on earth, chiefly owing to the virulence of yellow and malarial fever. To-day, on the Isthmus, yellow fever has faded into an 'historic disease,' no endemic case having occurred in Panama since November, 1905, or in Colon since May, 1906. As for malaria, its annual average, in 1906, of 1,200 to the thousand (these figures include those who had the fever more than once in the year, each case being counted), had been reduced in 1911 to 81. This virtual abolition of the two specific diseases of the place leaves two maladies of the Temperate Zone, pneumonia and tuberculosis. And the death-rate of Panama, Colon and the Zone, for 1910 and 1911, respectively, was 21.18 per 1,000 and 21.46 per 1,000, that of New York City being 21.72 per 1,000 for the year 1909."

The center and basis for this great work of public medicine has been the Ancon Hospital.

"By far the greatest achievement of Ancon Hospital is its success in handling malaria. The sanitation department has so dealt with the Zone that the number of malarial cases brought into hospital, expressed as a percentage of the Isthmian Commission's entire working force, fell from a monthly average of 6.83% in 1906 to 1.55% in 1910, and in 1911 to 1.54%.

The hospital is situated on the terraced slope of Ancon Hill above the city of Panama.

"The entire hospital is arranged on the separate pavilion system. The wards, each surrounded by its broad, screened balcony, are arranged in groups of various shapes, sometimes end to end, in line, sometimes on three sides of a square.

"For administrative purposes, the plant is handled in two divisions — the hospital proper and the insane department. The former division is again subdivided into the medical clinic, the surgical clinic, the eye and ear clinic, and the board of health laboratory. An out-patient department, presided over by the chiefs of clinic, treats about 1,000 cases monthly. The medical group includes a separate tuberculosis ward and an isolation building. The surgical group, with its 420 beds, centers in the operating-room, a cement-floored, virtually open-air hall, supplied with modern equipment and with several tables, to permit as many simultaneous operations. The staff here consists of twelve or thirteen surgeons. They constitute the actual working force of the operating-room, being assisted therein by only three nurses, who never handle the instruments. The nurses, male and female, number from eighty-five to one hundred, and are all graduate, trained nurses of two years' experience, selected in the states by civil service examination. The male nurses, of whom there are from fifteen to twenty, are used in certain of the black male wards. The women of the force have the help of black West Indian maids at the asylum and in the ambulance service. To assist in the nursing and cleaning there are also about one hundred and fifty attendants and thirty-five maids, all West Indian blacks. One feature of great significance in this pioneer institution is the Board of Health laboratory, so called because it performs not only the vastly important clinical laboratory work of the hospital, but also equally vital work for the entire sanitary department, as well as for other departments of the Isthmian Canal Commission. The laboratory staff consists of a chief and two assistant physicians, carried respectively as bacteriologist and pathologist, a chemist, a physiologist and the usual laboratory helpers. The field that these men cover, the variety and value of their labor, can scarcely be overestimated."

It is the work of this laboratory, in co-ordination with that of the hospital and the field, which has made possible the great progress in sanitation of the Canal Zone.

"The Canal Zone draws its abundant water supply from six large reservoirs. This water is so pure that you may drink it from any tap as safely as if it bubbled from the rocky crown of Mount McKinley. Now the United States, of course, controls the watershed. But, again, the ultimate check on all possible harm lies in Ancon Hospital laboratory. Of the six great reservoirs, some deliver their water directly, some through alum mechanical filters. But the waters of each of the six are examined bacteriologically, chemically and microscopically once a month. The mechanical filters are examined chemically every month, two or three samples being taken, and bacteriologically every day or two. On occasion, special examinations of the various supplies are made more frequently.

"No one who looks into the work of the department of sanitation as a whole can fail to appreciate its deep and far-sighted economy. Only one who knows the usual gait of private or governmental enterprise in the lower tropics can justly value the conscientious hard work spent on devising schemes to do Ancon's business while saving government money.

"A considerable and constantly growing source of actual income to the hospital is the influx of paying patients from Central and South America. Attracted at first by Ancon's fine record in surgical cases, some few wealthy persons from Chili, Peru, Guatemala, who otherwise would have gone to Europe for operations, stopped experimentally at Ancon. These went home delighted with the skill with which they had been handled, the comfort in which they had been housed and the kindliness that had uniformly surrounded them. They rapidly spread the fame of Ancon along the

whole coast, from Mexico to the Cape, and to-day nearly half the private rooms of the hospital are occupied by South or Central Americans, while a growing stream begs hard for space. Ancon Hospital is helping to establish better relations between this country and our southern neighbors."

From every point of view, then, medical, economic, humanitarian and political, the work of the Army Medical Corps at Panama has been advancing the cause, not only of medical service, but of American civilization. The work is creditable in the highest degree, and will stand as one of the "achievements" of preventive medicine.

SANITATION IN THE TROPICS.

It is highly gratifying to note in British West Africa sanitary work that is comparable with the pioneer achievements of Colonel Gorgas and his associates. Such work in Gambia, as in Panama, may well merit the consideration of those responsible for the public health in communities of the temperate zone, where there are not the untoward conditions as to hygiene which obtain in the tropics.

The African Gold Coast and its environs were but a few years ago regions as dreadfully pestilent as was Panama. In 1904 and 1905 the death-rate among the officials under the jurisdiction of the British Colonial Office, coming from other countries to live in Gambia, Nigeria, Sierra Leone and the Gold Coast, ran up to 28 per 1,000. In 1906 this dropped to 21; in 1911 it became less than 14. In 1903 there were 60 officials sent home invalided; in 1911 there were only 25. In the statistics set forth by Horn,[1] 1,259 individuals were taken into account in 1903 and 2,293 in 1911, the increase being fairly regular from year to year. The mortality rate has fallen to something more than one half, with a doubling of the population, and *pari passu* the average length of service of the deceased officers has increased from less than two years to more than four and one-half years; moreover, the officers invalided from West Africa now recover completely after a year's residence in England — a circumstance as happy as it appears unprecedented.

The West Coast of Africa was formerly known as "the white man's grave." In the seventeen years previous to 1897 its mortality rate was 75 per 1,000; in other contiguous regions it was fully 50 per thousand; today, on the other hand, except for the high temperatures which are assuredly enervating, it seems quite as healthful an occupation to be a Government officer in Africa as to be a citizen of any average American or European city — considerably more healthful than to be engaged in some of the dangerous trades which obtain in civilization.

The credit for such sanitary revolution must be accorded to the modern science of preventive medicine, and to the practical application of the discoveries and of the scientific principles evolved by Pasteur, Koch, Ross, Reed, Manson and a host of others. Malaria, yellow fever, the plague and the dysenteries are now eliminated, or at least controlled, on and about the Gold Coast. Marshes have been drained; there have been anti-mosquito campaigns and anti-typhoid inoculations; human beings have been evicted from insanitary regions; native towns and stations have been reconstructed; water supplies have been purified and controlled; diseased natives have been segregated.

Medical science has been nobly seconded in this work in West Africa by the Colonial Office, which has wisely authorized liberal and adequate expenditure. But it must be noted that the fall in the death-rates is conspicuously lower among the Government officials (who profit most by the sanitary measures here noted) than among "non-official" traders, miners, missionaries and natives who are not so much subject to the Government regulations. Tradespeople sleep over their shops, and are constantly surrounded by natives. Self-sacrificing missionaries are as constantly in touch with their flocks. We may be assured that with the ever increasing importance and development of West African industries — gold-mining, tin-mining, the cultivation and export of palm oil, rubber, cocoa and the like — the firms interested in these enterprises will take increasingly better care of their representatives and employees, and will institute adequate and scientific sanitation in the places where their business is done. For enlightened business men realize full well that sanitation is essential to their business interests.

[1] Horn, E. A.: Health of Europeans in West Africa. Lancet, May 18, 1912.

INDEPENDENCE DAY AND PREVENTABLE TRAUMA.

On the whole, the Fourth of July this year was pretty rationally celebrated throughout the country. It is true that 326 persons were injured more or less seriously by fireworks or firearms, but that was a considerably smaller number than in any previous recent year. Only 17 persons were killed this year by explosives. In 1911, 57

were killed, and in 1910, 131. The improvement in sanity and safety seems to be fairly rapid.

As a matter of fact, the fatalities from Fourth of July celebration this year were almost trivial compared with some from other preventable causes. On the two days following the Fourth, about sixty persons were killed, and many more were seriously injured, in two railroad accidents, one of which was apparently due to unpardonable culpability of an engineer. Those who take human lives in their hand must learn to handle them responsibly. The engineer differs from the doctor only in that he takes many lives in charge simultaneously, whereas the doctor usually takes them only one or two at a time. On July 2, two aviators were killed by falling from a monoplane at Squantum, Mass., and on July 4, five were killed at Atlantic City, N. J., by the explosion of a dirigible. In Massachusetts, there were six deaths from avoidable drowning on the Fourth of July.

As a nation we Americans are careless of human life, almost as careless in some respects as the Middle Ages. We are learning to prevent many deaths from disease, but we are still reckless of deaths from preventable trauma. The diminution in Fourth of July casualties this year is therefore doubly gratifying, and encouraging. It seems not too much to hope that they may in time be altogether eliminated, as smallpox and Asiatic cholera and bubonic plague and uncinariasis can be eliminated. It is perhaps natural for nations, as well as for some individuals, to celebrate their day of independence by excessive demonstrations that may result in permanent damage. This, however, is a custom most honored in the breach. The progress of social as well as of personal civilization consists essentially in the development of the inhibitions. It is time that the senseless waste of human life, health and happiness should cease. A good beginning in this direction has been made in patriotic celebrations. It should be carried to its logical conclusion in the prevention of all avoidable trauma.

AMERICAN SUPREMACY AT THE OLYMPIC GAMES.

THE overwhelming success of the American athletes at the current Olympic games in Stockholm is as interesting physiologically as it is nationally gratifying. It is probable that several factors concur in determining this superiority. In the first place we have a larger population to draw from than has any other of the contesting nations, and selection ought therefore to make our competitors more fit. In the second place our population is more mixed of all races, and we should therefore be able to select the best strains and breed the best mixtures. In the third place our people are probably on the whole better nourished and conditioned than are those of any other country, which again should conduce to racial physical superiority. In the fourth place the intensity of our national disposition leads our athletes to train much more eagerly and consistently, and with a keener professional intentness for winning. Whether all this be in the interests of amateur sport remains a question. It is even questionable if the American can truly be an amateur at anything. Be that as it may, the reasons for our racial success at the Olympics seem fundamentally grounded in physiologic and ethnologic conditions, with give us supremacy in this field of human endeavor, if not necessarily in others.

MEDICAL NOTES.

JAPANESE MEMORIAL TO ROBERT KOCH. — Under the instigation of Dr. Kitasato, a temple has been erected at Tokio, Japan, in memory of Robert Koch. It was recently dedicated with a memorial service in his honor.

MIDDLETON-GOLDSMITH LECTURES. — It is announced that Dr. E. F. Bashford, director of the Imperial Cancer Research Fund, of London, will deliver the Middleton-Goldsmith lectures before the New York Pathological Society in October, 1912.

A PHYSICIAN AS COLLEGE PRESIDENT. — Dr. Hugh Kerr Anderson, F.R.S., distinguished as a British physiologist, has been recently elected Master of Gonville and Caius College, Cambridge, England. It is not often, even in Great Britain, that a physician becomes the head of an academic institution.

CASE OF YELLOW FEVER AT PANAMA. — A press report from Panama on July 13 states that a case of yellow fever was recently discovered in that port in the person of a Spanish sailor on board the steamship *Chile*, recently arrived from Guayaquil, Ecuador. The case has been isolated at the St. Thomas Hospital.

BUBONIC PLAGUE IN TRINIDAD. — Report from Trinidad on July 13 states that since March 29 there have been in that island 13 cases of bubonic

plague, of whom 9 died, 2 recovered, and 2 are now convalescent. Seven of the cases were in the town of Port of Spain.

Freedom from Typhoid Fever in Cuba. — Report from Washington, D. C., on July 7 states that there have been no cases of typhoid fever among the United States sailors and marines on duty in Cuba during the recent disturbances in that island. This immunity is attributed largely to the use of antityphoid inoculation.

Attempt to Increase French Birth-Rate. — Report from Paris on July 7 states that in the attempt to increase the national birth-rate, the experiment will be tried, in a group of workmen's tenements in that city, of remitting the rent of any family for three months following the birth of a baby. It is also planned to establish a dispensary for the care of newborn infants and to provide nursing mothers with lunch and dinner free of charge. These projected measures seem to tend definitely towards the platonic institution of making the raising of children a state industry. It is to be questioned whether such methods will not encourage reproduction rather among the undesirable than among the desirable members of the community.

Goldfish in the Extermination of Mosquitoes. — Practically all minnows eat the larvæ of mosquitoes, but few minnows except those of goldfish can long survive in the stagnant water in which mosquitoes breed. It has been suggested that the stocking of all stagnant pools with goldfish would therefore be a useful and efficacious adjuvant in the effort to exterminate mosquitoes. Report from Chicago on July 8 states that one of the large Illinois railroad lines purposes to adopt this method instead of oiling or draining the waters along its lines. The experiment certainly seems rational and deserves trial, since it employs natural instead of artificial means for the elimination of undesirable forms of life.

Prohibition of Absinthe Importation. — Report from Washington, D. C., states that after Oct. 1, 1912, the importation of absinthe into the United States and its sale in interstate commerce will be prohibited on the ground that "this beverage is dangerous to health."

Projected Memorials to Lord Lister. — An item in a recent issue of the London *Post* states that —

"Movements are on foot for the establishment of fitting memorials to Lord Lister. The presidents of the Royal Society and the Royal College of Surgeons are to consult together to consider the matter, and it is understood that it has already been decided to add the names of a few leading Fellows of both the society and the college in order that they may join the two presidents in consultation. Representative committees are to be formed so that appeals may be made to the public. The council of the Royal College of Surgeons, of which Lord Lister was a member, has also decided to refer to the president and vice-presidents the question of obtaining a marble bust of the great surgeon, together with a pedestal, with which might be incorporated the memorial tablet which the council decided at a previous meeting should be erected in the college."

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, July 16, 1912, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 15, scarlatina 6, typhoid fever 13, measles 85, smallpox 0, tuberculosis 68.

The death-rate of the reported deaths for the week ending July 16, 1912, was 16.22.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday noon, July 13, 1912, was 208, against 350 the corresponding week of last year, showing a decrease of 142 deaths, and making the death-rate for the week, 15.06. Of this number 106 were males and 102 were females; 205 were white and 3 colored; 127 were born in the United States, 73 in foreign countries and 8 unknown; 39 were of American parentage, 139 of foreign parentage and 30 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 11 cases and 0 deaths; scarlatina, 8 cases and 0 deaths; typhoid fever, 12 cases and 1 death; measles, 86 cases and 3 deaths; tuberculosis, 71 cases and 20 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 11, whooping cough 1, heart disease 29, bronchitis 1. There were 28 deaths from violent causes. The number of children who died under one year was 43; the number under five years, 61. The number of persons who died over sixty years of age was 53. The deaths in hospitals and public institutions were 84.

Arrests for Illegal Opium Traffic. — Four Chinese residents of Boston were arrested in this city last week on a charge of unlawfully importing opium and of selling smuggled opium. They were held each in $500 bail.

SUCCESSFUL CANDIDATES IN DENTISTRY. — It is announced that of 180 candidates who took the examinations on June 5, 6 and 7 before the Massachusetts State Board of Registration in Dentistry, 95 passed and are therefore authorized hereafter to practice their profession in this state.

GIFT TO MALDEN HOSPITAL. — The trustees of the Malden (Mass.) Hospital have recently announced the receipt of a gift from Mrs. Charles L. Dean, of that city, of $5,000, to be known as Charles L. Dean Fund and to be used by the trustees at their discretion for general hospital purposes.

HOSPITAL STRUCK BY LIGHTNING. — During a recent severe thunderstorm along the south shore the Weymouth (Mass.) Hospital was four times struck by lightning. The electric lights, the telephone and the signal indicators were put out of service and the plastering in several rooms was badly damaged.

REPORT OF BOSTON INFIRMARY DEPARTMENT. — The recently published fifteenth annual report of the Boston Infirmary Department presents the record of work at the Long Island Hospital and at the Charlestown Almshouse for the year ending Jan. 31, 1912. During this period the total number of patients treated in the hospital was 2,116, of whom 1,008 were females and 1,108 males. The number of inmates at the almshouse has averaged about 100. Particular attention is called to the need of new buildings for patients on Long Island and of increased accommodation for nurses.

REPORT OF BOSTON CITY HOSPITAL. — The recently published forty-eighth annual report of the Boston City Hospital records the work of that institution in its several branches for the year ending Jan. 31, 1912. During this period a total of 11,271 patients were treated in the various departments of the hospital, and to the out-patient department 122,461 visits were made by 38,129 patients. Thirty-seven nurses were graduated from the training-school. There were added to the medical library 121 books, 199 monographs and reprints, 144 hospital and health reports and 500 periodicals.

TWO CENTENARIANS. — Mrs. Sarah Levine, who died last week at Waltham, Mass., is said to have been born in 1807, in Riga, Russia. Her demise is believed to have been expedited by the recent extreme hot weather. She is survived by one son.

Mrs. Louis Snay, who died on July 10 at North Oxford, Mass., is said to have been born in 1806 at St. Mary's, Canada. She was married and migrated to the United States in 1828, residing successively in Webster, Mass., and at North Oxford. She had been a widow for over 50 years. Though she was nearly blind, her health was otherwise excellent until a few years ago. She was inveterately fond of pipe smoking, and ascribed her longevity to the spiritual contentment induced by that practice. She is survived by two daughters and three sons.

NEW YORK.

DECLINE IN DEATH-RATE. — A bulletin of the department of health of New York City, issued on July 13, shows that the death-rate of the city has fallen from 36.31 per 1,000 in 1866, the year in which the department was organized, to 15.13 per 1,000 in 1911, a decrease of over 50% in the past 45 years. The bulletin attributes this reduction chiefly to public sanitary administration, inspection, measures of isolation and quarantine, and improvements in general hygiene, especially of children.

PREVENTION OF ACCIDENTS. — On July 4, Dr. W. H. Tolman, of New York, president of the American Museum of Safety, delivered an illustrated lecture on "The Prevention of Accidents in Great American Factories" in the public hall attached to the works of the Allgemeine Electricitaets Gesellschaft, in Berlin.

BEQUESTS BY MR. CLUETT. — George B. Cluett, founder of the banking firm of Cluett, Peabody & Co., who died at his home in Troy, N. Y., on June 28, was well known for his philanthropy. Among his benefactions were the following: The gift of $25,000 for the establishment of the nurses' fund of St. John's P. E. Church, Troy, of which he was a member; the new Samaritan Hospital at Troy; the Troy Boys' Club; large donations to the Saratoga Hospital and the Saratoga Cure and Infirmary; $25,000 to the gymnasium of St. Paul's School at Garden City, Long Island, N. Y., as a memorial to his son Alphonso; the yacht *George B. Cluett* for the use of Dr. Grenfell in his Labrador Coast Mission. Mr. Cluett was one of the original trustees of the Samaritan Hospital, a trustee of the Troy Orphan Asylum and a liberal contributor to the Instructive District Nursing Association of Troy, in which he was much interested.

THE ALIEN INSANE. — A public hearing on the alien insane in the New York State Hospitals was held on July 1, at the Manhattan State Hospital

for the Insane on Ward's Island, by Dr. Spencer L. Dawes, of Albany, head of the Governor's Commission on the Alien Insane, assisted by counsel. At this, facts were brought out which demonstrated that the number of alien insane in these hospitals greatly exceeds the number shown by such classifications as have been made, and, further, that the means and methods at present employed for detecting the mentally deficient on the arrival of immigrants in this country are wholly inadequate. Both Dr. William Mabon, director of the Manhattan State Hospital, and Dr. August Hoch, director of the State Psychiatric Institute on Ward's Island and professor of nervous and mental diseases in Cornell University Medical College, testified that it would be impossible, even for expert alienists, to detect cases of insanity, as a rule, in the customary plan of having the newly arrived passengers file rapidly past the inspector at the immigration station. In reply to the inquiry by Dr. Dawes whether it was possible for an expert alienist to pick out from a line of immigrants, passing at the average rate of three a minute, 25% of those affected with the different forms of insanity, Dr. Mabon said "No," and expressed the opinion that even an expert would be as likely, under such circumstances, to pick out as many sane as insane. "We have in the Manhattan State Hospital right now," he said, "many patients who would be able to pass the alienists at the immigration station if we should send them down for inspection." He went on to state that of the 4,702 patients at present in his institution, 2,657, or about 57%, were foreign born. Leaving out the naturalized and those possibly naturalized, there remained 1,399, or 40% of the entire number of inmates, who could reasonably be classed as aliens. Yet there were among these only 18 cases for which warrants for deportation had been issued. Averaging the life of the insane patient at ten years, the alien insane in the hospital would, at the present price of maintenance, eventually cost the state $3,413,200. To remedy the present state of affairs he suggested that, since a prolonged examination at the immigration station was impracticable, there should be an investigation as to the mental status of emigrants either at their native towns or the ports from which they sailed, and that they should be kept under observation on the steamer, with more efficient observation for one year after their arrival in this country. The period of time during which they might be liable to deportation, he thought, should be about five years.

Current Literature.

Medical Record.

July 6, 1912.

1. Bainbridge, W. S. *The De Keating-Hart Method of Fulguration.*
2. Disen, C. F. *Relation of Calcium to Pretuberculous States, Arteriosclerosis and Insanity.*
3. Hammond, R. *Advantages and Disadvantages of Plaster of Paris as a Fixative Apparatus.*
4. Warbrick, J. C. *Indicanuria and the Proteins.*
5. Bassler, A. *Innocent Colon Bacilli in Urines.*
6. *Starr, I. P. *The Differential Diagnosis of Pulmonary Tuberculosis.*

6. Starr presents a study based upon 519 non-tuberculous cases admitted to Gouverneur Tuberculosis Clinic from Nov. 1, 1903, to Nov. 1, 1910. [R. M. G.]

New York Medical Journal.

July 6, 1912.

1. Forbes, A. M. *The Rotation Treatment of Scoliosis.*
2. Friedenwald, J., and Leitz, T. F. *The Gastric Crises of Tabes.*
3. Taylor, J. M. *Neurasthenia in the United States.*
4. Amberg, E. *Facial Paralysis Complicating Suppurative Otitis Media; Atypical Mastoid Operation.*
5. Soresi, A. L. *American and European Medical Schools.*
6. Butler, F. E. *Acute Anterior Poliomyelitis.*
7. Hartshorn, M. *Maternal Nursings.*
8. Toll, R. M. *Treatment of Chancroids.*

Bulletin of the Johns Hopkins Hospital.

July, 1912.

1. *Halsted, W. S. *The Effect of Ligation of the Common Iliac Artery on the Circulation and Function of the Lower Extremity. Report of a Cure of Ilio-Femoral Aneurysm by the Application of an Aluminum Band to that Vessel.*

1. In this long article, occupying the entire number of this journal, Halsted first reviews all the previous work and operations performed on ilio-femoral aneurysm since the initial operation by William Gilson one hundred years ago. The indications which then led to this operation were (1) arrest of hemorrhage, (2) cure of aneurysm, (3) prevention of hemorrhage. In tabular form he gives all the cases operated since 1880, while he gives the details of numerous others. He discusses the effect of the ligation upon the function of the limb, and the mortality. The paper is a detailed and interesting review of the subject, and a valuable contribution to its literature. [J. B. H.]

The Journal of Experimental Medicine.

May 1, 1912.

1. Corper, H. J. *Correlation of the Histological and Chemical Changes in the Spleen during Necrosis and Autolysis.*
2. McCrudden, F. H., and Fales, H. L. *Complete Balance Studies of Nitrogen, Sulphur, Phosphorus, Calcium and Magnesium in Intestinal Infantilism.*
3. McCrudden, F. H. *The Effect of Fat and of Carbohydrate Diets on the Excretion of Creatin in Cases of Retarded Development.*
4. Noguchi, H. *Pure Cultivation of Spirocheta Refringens.*
5. Bailey, C. H. *Effects of Titrations of Inequality of Sensitization of Corpuscles.*
6. Goodman, A. A. *Immunichemical Studies with Peptones. (1) General Studies with Peptones and the Immune Hemolytic System.*
7. *Kolmer, J. A., and Schamberg, J. F. *Experimental Studies on the Administration of Salvarsan by Mouth to Animals and Man.*
8. Lambert, R. A. *The Production of Foreign Body Giant Cells in Vitro.*
9. Carrel, A. *On the Permanent Life of Tissues Outside of the Organism.*

10. ZINSSER, H. *On Albuminolysins and their Relation to Precipitin Reactions.*

7. Kolmer and Schamberg administered salvarsan by mouth to animals and patients with syphilis. They find that with the exception of a little vomiting and diarrhea in some cases, salvarsan can be given by mouth up to 0.6 gm. to human subjects, without producing toxic symptoms. Thus administered, the drug exerts a therapeutic influence, but this influence is too feeble to warrant its use by this route. [R. I. L.]

JOURNAL OF MEDICAL RESEARCH.

JUNE, 1912.

1. TODD AND WOLBACH. *Parasitic Protozoa from the Gambia.*
2. DARLING. *The Pathological Anatomy of Natural and Experimental Murrina, a Trypanosomal Disease of the Isthmus of Panama.*
3. OPHÜLS AND MCCOY. *Spontaneous Nephritis in Wild Rats.*
4. *WHITE AND GAMMON. *The Relation of Animal Fat to Tubercle Bacillus Fat:*
5. OERTEL. *The Cyanotic Induration of the Kidney.*
6. WHITE AND AVERY. *The Action of Certain Products Obtained from the Tubercle Bacillus.*

4. The growth of the tubercle bacillus is hastened and generally improved by the addition of human and certain other fats to the culture media. At the same time, the "engorged" bacilli become more highly acid-fast and less virulent. Assuming that the tubercle bacillus in the human body flourishes best in the presence of fat, the authors advance a novel theory to account for the usual distribution of such processes in the lung. The liver is admitted to be the site for mobilizing and changing the accumulated fats of the body. The blood passes from the liver directly to the lung, where it stagnates to a slight degree, because of the shortness of the pulmonary arm of the circulatory system. For this reason the fats are allowed to separate and gravitate to the surface of the blood column. This layer, rich in fats, is driven, because of the anatomical arrangements of vessels, to the apices in man and the caudate lobes in cattle, both the seats of most prevalent tubercular infection. In this way ample nourishment is furnished the tubercle bacillus. It is hard to understand the apparent paradox that those who are accumulating fat are presenting the best prognosis. The authors suggest that this discrepancy may be due to an attenuation of the bacilli from their "engorgement with fat." [L. H. S.]

THE LANCET.

JUNE 15, 1912.

1. *KIDD, P. *The Lumleian Lectures on Some Moot Points in the Pathology and Clinical History of Pneumonia. Lecture I.*
2. *DUDGEON, L. S. *The Croonian Lectures on the Pathology of Immunity as Illustrated by the Behavior of Fluid Exudates from the Tissues and Various Body Cavities in Acute and Chronic Bacterial Infections, More Especially with Regard to the Problem of Aggressins. Lecture I.*
3. MOORE, N. *The Presence and Intensity of Syphilis in the Past and at the Present Day.*
4. WALLACE, C. *Abdominal Drainage in the Treatment of Peritonitis.*
5. *LANE, E. *Syphilis d'Emblée.*
6. SPENCER, W. G. *Relief following Bilateral Nephrotomy and Drainage for Acute Nephritis Attended by Suppression of Urine and Uremic Convulsions.*
7. ROBERTS, M. P. *Telanic Spasms Occurring in a Case of Chronic Ulceration of the Leg.*
8. OLIVER, J. *An Accessory Uterus Distended with Menstrual Fluid Enucleated from the Substance of the Right Broad Ligament.*

1. Kidd, after briefly describing pneumonia and its etiology, considers the theories as to mode of infection: aërogenic, according to which the germ is directly involved; and hematogenous, according to which it is first introduced into the blood stream and later localizes in the lungs. He then discusses theories regarding crisis and concludes that this phenomenon must depend on the development of antibodies.

2. Dudgeon in the Croonian Lecture takes up a complex subject in a detailed and exhaustive paper, which is of more interest to scientists and trained laboratory workers than to general practitioners.

5. Syphilis d'emblée, or syphilis without chancre, does not exist, according to Lane. It simply means that the chancre cannot be found. With this as a text Lane discusses various cases of syphilis in which no chancre could be found and the need of precautions, particularly by physicians, against contracting this disease in the course of their work. [J. B. H.]

JUNE 22, 1912.

1. *KIDD, P. *The Lumleian Lectures on Some Moot Points in the Pathology and Clinical History of Pneumonia. Lecture II.*
2. DUDGEON, L. S. *The Croonian Lectures on the Pathology of Immunity as Illustrated by the Behavior of Fluid Exudates from the Tissues and Various Body-Cavities in Acute and Chronic Bacterial Infection, More Especially with Regard to the Problem of Aggressins.*
3. JONES, H. M. *Case of Ganglion Neuroma of the Mesentery, Partly Embryonic in Structure.*
4. DAVY, H. *Some Remarks on Dilatation of the Heart.*
5. EDRIDGE-GREEN, F. W. *A Case of Color Blindness.*
6. CHAPPLE, H. *Two Cases of Pneumococcal Vulvo-Vaginitis in Children.*

1. In the second Lumleian Lecture, Kidd takes up the physiology of respiration in relation to pneumonia, the characteristics of the sputum, physical signs and heart and blood pressure. He brings up the interesting point, hitherto much neglected, as to the relation of pneumonia to tuberculosis as a complication of the latter disease. He believes it to be a very rare one; likewise, as a complication of rheumatic fever it is rare, while its relation to influenza both as influenzal pneumonia and as a complication is not uncommon. He discusses delayed resolution and pneumonia terminating in fibrosis. [J. B. H.]

JUNE 29, 1912.

1. DUDGEON, L. S. *The Croonian Lectures on the Pathology of Immunity as Illustrated by the Behavior of the Fluid Exudates from the Tissues and Various Body Cavities in Acute and Chronic Bacterial Infection, More Especially with Regard to the Problem of Aggressins. Lecture III.*
2. *KIDD, P. *The Lumleian Lectures on Some Moot Points in the Pathology and Clinical History of Pneumonia. Lecture III.*
3. *VON BARDELEBEN, H. *Relationship of the Lungs and Genital Organs of Tuberculous Women.*
4. DONALD, R. *A Comparison between Fleming's (Hecht's) Modification and the Wassermann Test.*
5. RITCHIE, L. C. P. *Disappearance of a Skin Carcinoma under Local Application of Adrenin.*

2. In this lecture Kidd discusses "Friedländer" pneumonia characterized by a malignant course and early death, with absence of herpes; he gives a brief summary of recorded cases, he mentions streptococcal pneumonia as rare, he speaks of pulmonary congestion as a rather indefinite term of which the French writers are rather fond. He goes into some details of the subject of "splenopneumonia," a term introduced by Grancher to describe a variety of subacute pneumonia simulating pleurisy with moderate effusion. This may be rheumatic, tuberculous or due to the pneumococcus; frequently it is found as a complication of a severe bronchitis.

3. According to certain figures based on autopsy, genital tuberculosis is combined with pulmonary tuberculosis in 90.4% in women. There seems to be some very close relationship between these two conditions; an early lung tuberculosis is often cured by removing a secondary genital deposit, and also an advanced lung condition is usually made worse by such an operation. The writer discusses this subject in an interesting way, especially the causes for pregnancy and childbirth being so very

fatal in cases of tuberculosis of the lungs and the indications for emptying the uterus or, to produce still better results, removing it. [J. B. H.]

British Medical Journal.

June 15, 1912.

1. *Byers, J. *The Evolution of Obstetric Medicine.*
2. *Malcolm, J. D. *Wertheim's Operation for Cancer of the Cervix Uteri.*
3. Parry, L. A. *Fracture of the Lower End of the Humerus in a Child Treated by Immediate Wiring.*
4. *Rennie, G. E. *Endothelioma of the Pituitary Gland with Infantilism.*
5. Ewart, W. *The Appendicitis Dilemma, and the Preoperative Diagnosis.*
6. Mann, G. *New Methods for the Culture of Bacteria.*

REPORT TO THE THERAPEUTIC COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION.

7. *The Bactericidal Action of the Cresols and Allied Bodies and the Best Means of Employing Them.*

1. *Cf.* editorial in the issue of the Journal for July 4 (vol. clxvii, p. 25).

2. Malcolm describes his experiences with Wertheim's operation for cancer of the cervix uteri (abdominal hysterectomy with certain modifications introduced by Wertheim). He discusses under this heading cancer of the cervix in general, its symptomatology and difficulties in operating. Early diagnosis and prompt operation are essential. He considers Wertheim's method a great advance over any other.

4. Rennie discusses this interesting case of endothelioma of the pituitary gland with pathologic findings in detail. [J. B. H.]

June 22, 1912.

1. Rankin, G. *A Clinical Lecture on Colic.*
2. Swain, J. *Enterospasm and Colic from the Surgical Point of View.*
3. Bramwell, B. *Remarks on the Salvarsan Treatment of Pernicious Anemia.*
4. Power, D'A. *On the Treatment of Syphilis.*
5. Lewis, T. *Electro-cardiography and its Importance in the Clinical Examination of Heart Affections.*
6. Rogers, L. *The Rapid Cure of Amebic Dysentery and Hepatitis by Hypodermic Injections of Soluble Salts of Emetine.*

3. Bramwell reports progress on two cases of pernicious anemia previously described as benefited by salvarsan, and describes three others. He believes salvarsan a far more potent remedy than arsenic in these cases as far as he can tell by the small number of cases. The article is hardly convincing. [J. B. H.]

June 29, 1912.

1. *Morris, M. *Prurigo, Pruriginous Eczema and Lichenification.*
2. *Lapage, C. P. *Certain Forms of Fever of Obscure Origin in Infancy and Childhood.*
3. Tait, A. E. *A Study of an Epidemic of Measles.*
4. Gifford, A. H. *Aneurysm of the Superior Mesenteric Artery with Rupture.*
5. Lewis, T. *Electro-cardiography and its Importance in the Clinical Examination of Heart Affections.* (Continued.)

1. Morris briefly discribes the three conditions mentioned in the title as to diagnosis, prognosis and treatment.

2. Under this heading LaPage describes rheumatism, leukemia and Hodgkin's disease, colon bacilluria, digestive disturbances leading to fever and meningitis. [J. B. H.]

The Indian Medical Gazette.

June, 1912.

1. *Moses, O. St. J. *Review of a Year's Medico-Legal Work in the Calcutta Morgue, 1911.*
2. Connor, F. P. *The Intra-Capsular Operation for Cataract (Smith's Method) from the Point of View of the Civil Surgeon.*
3. Burgess, J. H. *Ten Months' Work in Military Employ.*
4. Berkeley-Hill, O. *The Psycho-Analytic Method of Treatment of the Neuroses.*
5. Smith, F. F. S. *Case of Cecum and Appendix in Left Inguinal Hernia.*

1. In a series of 317 adult autopsies, the heaviest liver weighed 115 oz., and the lightest 22 oz. The heaviest spleen weighed 48 oz., and the lightest 1 oz. [R. M. G.]

Wiener Klinische Wochenschrift. No. 26.

June 27, 1912.

1. Goldflam, S. *Cases of Pupillary Phenomena.* (To be concluded.)
2. Hoke, E. *Experimental Investigations on the Paradoxical Pulse.*
3. *Stein, C. *Angiosclerotic Otalgia.*
4. v. Graff, E. *A Case of Primary Sarcoma of the Stomach. Resection. Cure.*
5. Walter, X. *The Action of Adalin.*
6. Randnitz, R. W. *The Question of Inoculation Education.*

3. Stein's article is a contribution to the pathogenesis of painful sensations in the auditory organ. He believes that arteriosclerotic changes in the blood vessels supplying the ear may produce various painful or unpleasant sensations in the ear. To this condition he applies the term angiosclerotic otalgia. [R. M. G.]

Revue de Médecine.

June, 1912.

1. *Chauffard and Rendu. *The Syndrome of Acute Dehydration in Diabetic Coma.*
2. Mouisset and Gaté. *Hystero-Epilepsy in Cardiac Disease.*
3. Jeanselme and Chevallier. *Researches on Secondary Syphilitic Meningopathies, Clinically Latent.*
4. *Cesa-Bianchi. *The Toxic Action of Organic Extracts.*

1. The clinical symptoms and signs of diabetic coma indicate an intense dehydration of the body. This fact is further sustained by the increased viscosity of the blood. The authors consider this a far more important etiological factor than the commonly accepted causes dependent on the one hand upon abnormal acidity and on the other upon protein toxicity. This view is of utmost interest from the theoretical viewpoint, but is of greater importance because it leads to a distinct revolution in the commonly accepted therapeutic standards. Intravenous injections of hypertonic alkaline solutions are, of course, contra-indicated. The authors recommend the slow injection of a liter of hypotonic or isotonic solutions. Good results have followed this treatment.

4. Watery extracts of lung tissue, lymphoid organs and the glands of internal secretion, when introduced intravenously into animals, are extremely toxic. Protection is afforded by the previous administration of sublethal doses. This protective power is not specific, since the injection of any of these substances will afford immunity, though of short duration, to all of the members of the group. This fact would indicate that a common poison was responsible for this form of "anaphylaxis." The exact nature and properties of this toxic body is still unknown. [L. H. S.]

Il Policlinico.

June, 1912.

SURGICAL SECTION.

1. Poggiolini, A. *Can Other Germs, Independently of the Streptococcus, Induce Erysipelas?*
2. *Chiasserini, A. *Experimental Researches on Transplantations of Vessels into Ureters and of Ureters into Vessels, and on Uretero-Deferential Anastomoses.*
3. Leotta, N. *Hyperplastic Hypophysary Struma with Acromegaly, and a Contribution to the Pathology and Surgery of Hypophysary Tumors.* (To be continued.)

2. Chiasserini publishes an extensive work on ureterovascular transplantation and anastomoses, with excellent results and a well-selected bibliography of thirty-six titles. [R. M. G.]

Obituary.

NATHAN MAYER, M.D.

DR. NATHAN MAYER, who died of heart disease on July 10, at Hartford, Conn., was born in Bavaria, Germany, on Dec. 25, 1838. After receiving his early education in his native town, he emigrated in 1849 to the United States, where his family settled at Cincinnati, Ohio. He received the degree of M.D. from the Ohio Medical College, and subsequently continued his studies in Paris, where he served for a short time as a surgeon in the French army during the Franco-Italian war. Returning to the United States in 1861, he was immediately appointed assistant surgeon in the Fourteenth Connecticut Volunteers. In 1862 he was promoted to be surgeon and was transferred to the Sixteenth Connecticut Regiment, being later taken prisoner with this command at Plymouth, N. C., and sent to Libby Prison. After his release, he was appointed medical purveyor for the Union troops in North Carolina, with the rank of brigadier-general, and served in this capacity throughout the remainder of the Civil War. Subsequently he settled at Hartford, Conn., where he pursued the practice of his profession until his death. He was for many years on the staff of the St. Francis Hospital, Hartford, and was a member of the Hartford Medical Society and of the Connecticut Medical Society. He was much interested in music, and for over 45 years was musical and dramatic critic for the Hartford *Times*. He was not married.

Correspondence.

A CORRECTION.

PROVIDENCE R. I.,
July 10, 1912.

Mr. Editor: The life of a proof reader is never a happy one, and in dog days the poor man is entitled to especial consideration. And yet I think you ought to rebuke the man who, on page 34, sanctioned "a baronet of the united kingdom." The use of the lower case goes a little too far in that instance and wounds to the quick one who was born there.

G. A. B.

APPOINTMENTS.

WESTERN RESERVE UNIVERSITY.— *Dr. Clark A. Hamann*, professor of applied anatomy and clinical surgery, has been recently appointed dean of the medical department. *Dr. Howard B. Haskins* has been appointed associate professor of organic chemistry, and *Dr. David Marine*, assistant professor of experimental medicine.

JEFFERSON MEDICAL COLLEGE.— *Dr. Philip B. Hawk*, of the University of Illinois, has been elected professor of chemistry at the Jefferson Medical College, Philadelphia.

COLUMBIA UNIVERSITY.— *Professor Francis Carter Wood* has been appointed director of cancer research under the George Crocker Research Fund.

NORTHWESTERN UNIVERSITY.— *Dr. Arthur I. Kendall*, instructor in preventive medicine and hygiene at the Harvard Medical School, has been appointed professor of bacteriology at Northwestern University.

UNIVERSITY OF LIVERPOOL.— *Dr. E. E. Glynn*, lecturer in clinical pathology at the University of Liverpool, England, has been appointed George Holt professor of pathology at that institution, upon the death of Sir Rubert Boyce.

RECENT DEATHS.

DR. THOMAS H. BACHE, who died in Philadelphia on July 8, was born in 1826. He was a graduate of the University of Pennsylvania, and served in a medical capacity throughout the Civil War.

JAMES ANSON BUSHEE, M.D., S.M.M.S., formerly of Somerville, Mass., died at Taunton, Mass., on May 23, 1912.

DR. JAMES SHAW CATTANACH, who died on July 7 at Ronkonkoma, L. I., New York, was born in Scotland in 1836. He came to the United States in 1866. He is survived by four daughters and three sons.

DR. J. E. V. MATHIEU, who died of heart disease on July 12 at Central Falls, R. I., had been for ten years coroner of that city. He was born in 1863 and is survived by his widow and by two children.

EDWARD JOSEPH SHANAHAN, M.D., S.M.M.S., died of facial erysipelas at Taunton, Mass., on June 27, 1912, aged forty-six years.

DR. DANIEL H. SMITH, of New York, died on July 10. He was born in Orange County, N. Y., in 1852, and was graduated from the College of the City of New York in 1870. In 1873 he received the degree of M.D. from the College of Physicians and Surgeons, New York, and was honored with a prize for his graduating thesis. He then served as interne at the Charity Hospital, on Blackwell's Island; after which he pursued a course of study at Glasgow University and the Rotunda Hospital. Dr. Smith had been for nineteen years a member of the board of police surgeons, and he was a charter member of the Medical Association of the Greater City of New York.

DR. MILES O'REILLY, of Fishkill, on the Hudson, N. Y., died from pneumonia in St. Luke's Hospital, Newburgh, on July 11. He was graduated from the Albany Medical College in 1874, and had practiced at Fishkill ever since.

DR. WILLIAM HAILES, a prominent surgeon of Albany, N. Y., died on July 6, at the age of sixty-two years. He was graduated from the Albany Medical College in 1870, and at the time of his death was professor emeritus of pathological anatomy and histology in that institution and attending surgeon to the Albany and St. Peter's Hospitals.

BOOKS AND PAMPHLETS RECEIVED.

The Medical Treatment of Epilepsy. By William T. Shanahan, M.D. Reprint.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 6, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	8	2
Chicago	—	—	Waltham	4	0
Philadelphia	—	—	Brookline	10	1
St. Louis	—	—	Chicopee	8	6
Baltimore	—	—	Gloucester	7	2
Cleveland	—	—	Medford	4	1
Buffalo	—	—	North Adams	6	1
Pittsburg	—	—	Northampton	8	0
Cincinnati	—	—	Beverly	6	1
Milwaukee	—	—	Revere	6	0
Washington	—	—	Leominster	2	0
Providence	—	—	Attleboro	4	1
Boston	196	63	Westfield	5	1
Worcester	51	22	Peabody	3	0
Fall River	29	17	Melrose	4	0
Lowell	34	13	Woburn	4	0
Cambridge	23	7	Newburyport	5	0
New Bedford	30	16	Gardner	5	1
Lynn	24	4	Marlboro	3	0
Springfield	19	7	Clinton	2	0
Lawrence	24	13	Milford	—	—
Somerville	16	2	Adams	2	0
Holyoke	24	11	Framingham	—	—
Brockton	9	2	Weymouth	—	—
Malden	8	2	Watertown	0	0
Haverhill	12	0	Southbridge	1	0
Salem	9	2	Plymouth	—	—
Newton	8	4	Webster	3	2
Fitchburg	6	2	Methuen	—	—
Taunton	14	3	Wakefield	5	0
Everett	5	1	Arlington	5	3
Quincy	—	—	Greenfield	1	0
Chelsea	6	4	Winthrop	4	0

Original Articles.

SECOND NOTE ON BACTERIAL INVASION OF THE BLOOD AND THE CEREBROSPINAL FLUID BY WAY OF LYMPH NODES: FINDINGS IN BRONCHIAL AND RETROPERITONEAL LYMPH NODES.*

BY E. E. SOUTHARD, M.D.,

Bullard Professor of Neuropathology, Harvard Medical School, and Pathologist to the Massachusetts Board of Insanity;

AND

MYRTELLE M. CANAVAN, M.D.,

Pathologist to the Boston State Hospital.

CONTENTS.

Post-mortem bacteriology of blood and cerebrospinal fluid (data of Gay and Southard, 1910) and of blood, cerebrospinal fluid and mesenteric lymph nodes (data of Southard and Canavan, 1910).
Further confirmation of former claim that cerebrospinal fluid is less likely to be negative to culture than other regions examined.
Bacteriolytic substances absent from cerebrospinal fluid.
Insane hospital *vs.* general hospital material: desirability of similar work with the latter.
Richness of bacterial invasion in insane hospital material possibly due to atrophic membranes and tissues frequently found among the insane.
Adler's claim concerning atrophic lymphoid tissue.
Probable path of bacteria through lymph node to blood, thence to cerebrospinal fluid: bacteria later die out in the blood.
Mesenteric and bronchial lymph node lesions: frequency.
Data concerning bronchial lymph node findings: tentative conclusions.
Data concerning retroperitoneal lymph node findings: tentative conclusions.
Correlation with intervals post mortem.
Species of bacteria found.
Bacterium anthracoides Kruse.
The question of ward and laboratory invasions.
Summary.

THE present communication is the third concerning work upon the possible paths of meningeal infection. The second communication dealt with the bacterial invasion of the blood and the cerebrospinal fluid in the light of findings in the mesenteric lymph nodes in fifty cases of mental disease. We there referred to the previous work of Gay and Southard on findings in the blood, and in the cerebrospinal fluid in one hundred earlier cases from the same general source.[1]

The striking fact which stood out from the original series of Gay and Southard was that whereas (*a*) 41% of the *bloods* remained sterile to their attempts at cultivation of bacteria, (*b*) only 28% of the *cerebrospinal fluids* remained sterile under similar methods. The 41% sterility of the bloods could be compared with Gradwohl's 22%, Otten's 42%, and Simmonds' 48%. There were no available data of comparison for the cerebrospinal fluids. But in the note referred to above, the writers again obtained in fifty further cases fewer negative cultivations from cerebrospinal fluids (15%) than from blood (20%).[2] Our blood findings in this second series, therefore, corresponded well with Gradwohl's 22% negative blood cultivations from medicolegal material, in connection with which correspondence we pointed out that our second series was in a sense more selected than the first (we chose cases with palpable mesenteric lymph nodes) and was richer in intestinal disease (15 cases of dysentery in 50).

In a further series of 69 cases, we get once more similar ratios to those of the original series, viz., 41% sterile bloods against 22% sterile cerebrospinal fluids. This we attribute possibly to the facts that, for this third series, we were not compelled to choose cases with enlarged mesenteric lymph nodes (our study dealing rather with other lymph nodes), and that the epidemic dysentery which had enriched with secondary invaders the flora of our second series was now past.

We therefore regard as somewhat firmly established the original claim of Gay and Southard that *the cerebrospinal fluid post mortem is more likely to yield bacteria than is the blood*, at least in insane hospital material.

The most plausible reason for this disparity, advanced by Gay and Southard as early as 1908,[3] was an important difference between the blood and the cerebrospinal fluid, in that the former during life and for some time after death is known to contain bacteriolytic substances, whereas the cerebrospinal fluid, as shown by Gay and independently by McKenzie and Martin,[4] contains normally no bacteriolytic substances.

Of course, it remains to be shown by some worker having access to general hospital or medicolegal material, and disposed to spend time and energy on this problem of the comparative post-mortem flora of the blood and cerebrospinal fluid, that our insane hospital ratios resemble general hospital ratios.

In one respect, naturally, the insane hospital material may bias the general results: it is possible, as was indeed concretely suggested by a case of Southard and Richards,[5] that the intestinal walls and other germ-bearing surfaces may be more permeable by bacteria, both before and after death, than are the same surfaces of the usual general hospital case. In the case of Southard and Richards the typhoid bacillus was found in a swollen mesenteric lymph node and in the acutely inflamed meninges of a case of general paresis, in whom there was no other macroscopic sign of typhoid fever. There is some general ground for the idea that the intestinal walls in several types of insanity are to some degree atrophic. We pointed out, also, that the livers and especially the spleens were much underweight in the majority of our cases. The latter point (spleen weights) was especially called to our attention by the present pathologist of the Danvers State Hospital, Dr. H. M. Adler, in connection with his studies of fat disposal by the body.[6] Adler assumes that in a large number of cases of insanity there is "an atrophic condition of the lymphoid tissue. This is particularly striking in the spleen, which, as a rule, is reduced in size, the weight varying from 150 gm. to as low as 7 gm.

* Being Danvers State Hospital Contributions, No. XVIII, 1912. Papers I–XVII formed the Charles Whitney Page Series, 1910. The present paper is a sequel to Paper VIII of that series. The paper was read in summary form at the 1912 meeting of the American Association of Pathologists and Bacteriologists, Philadelphia.

The mesenteric lymph nodes as well as the lymphoid tissue of the intestine are involved in this general deterioration."

Our study of the post-mortem flora of the mesenteric lymph nodes yielded only a few more (22%) sterile cultures than the blood (20%) or the cerebrospinal fluid (15%) in the same series. Growths from a combination of two of the three loci were more frequently obtained from mesenteric lymph node and cerebrospinal fluid (17%), a fact which seemed to us consistent with possible passages from lymph node to cerebrospinal fluid by way of the blood, followed later by bacteriolysis in the blood. This latter hypothesis is not the only possible one, as it might be thought that the bacteria had passed directly from the lymph stream to the subdural sac, and that the more readily perhaps in agonal conditions.

On the whole, however, the first hypothesis was consistent with more well-known facts. We determined to test the results of comparing *mesenteric lymph node* content with blood and cerebrospinal fluid content by studying the relation of *bronchial lymph node* content to that of blood and cerebrospinal fluid. In the Danvers laboratory it has been a question which of these two groups of nodes, — mesenteric or bronchial, — is oftener the seat of lesion. If the tuberculous bronchial nodes are considered, our figures seem to show that the bronchial nodes slightly lead the mesenteric in respect to gross lesions noted. In non-tuberculous swellings and other lesions in these two groups of nodes, possibly the mesenteric lead. At any rate these two groups seem to lead all others. To compare our mesenteric and bronchial lymph node findings with those in some other nodes, we chose the *retroperitoneal* nodes on account of their relation to the pelvic viscera, so often diseased.

BRONCHIAL NODE SERIES.

We shall consider first the bronchial lymph node series. The technic has been previously described.[1, 2]

Growths of some sort were obtained on the plates as follows:

Heart's blood,	31
Cerebrospinal fluid,	37
Bronchial lymph nodes,	32

Excluding a few obvious contaminations, the table reads as follows:

Heart's blood,	31 − 2 = 29
Cerebrospinal fluid,	37 − 2 = 35
Bronchial lymph nodes,	32

Calculating percentages by removing contaminations from the denominator, we arrive at the following:

	Per cent positive.
Heart's blood,	60
Cerebrospinal fluid,	78
Bronchial lymph nodes,	64

Growths from one region and not from the other two were obtained:

	Per cent positive.
Heart's blood,	0
Cerebrospinal fluid,	15
Bronchial lymph node,	8

Growths from two regions and not from the third were obtained as follows:

	Per cent positive.
Heart's blood and cerebrospinal fluid,	15
Heart's blood and bronchial lymph node,	10
Cerebrospinal fluid and bronchial lymph node,	4
Growths from all three regions,	35

Postponing extended analysis until the retroperitoneal node findings have been tabulated, we see that —

(1) The cerebrospinal fluid retains its lead as a bacterium-container, when tested against blood and bronchial nodes;

(2) The bronchial lymph nodes run slightly ahead of the blood (reversing conditions in our previous study where the blood, though behind the cerebrospinal fluid, was somewhat more frequently invaded than the mesenteric lymph nodes);

(3) In no single case was the blood positive when the other loci were sterile;

(4) The number of cases of association of organisms in cerebrospinal fluid and bronchial lymph node is small (as against the favorite combination of organisms in cerebrospinal fluid and mesenteric lymph node in the former series);

(5) As against the rich display of organisms in all three loci (mesenteric lymph node series, 55%), here in the bronchial lymph node series we get but 35% positive from all three loci.

Our general impression would, therefore, run that the contents of the bronchial lymph nodes have less to do with those of the cerebrospinal fluid than have the mesenteric lymph node contents. Before trying to deal with this general impression, let us consider the retroperitoneal lymph node series, a series of twenty-five cases.

RETROPERITONEAL NODE SERIES.

Growths of some sort were obtained on the plates as follows:

	Cases.	Per cent.
Heart's blood,	17	68
Cerebrospinal fluid,	19	76
Retroperitoneal lymph node,	21	84

Growths from one region and not from the other two:

	Per cent.
Heart's blood,	4
Cerebrospinal fluid,	4
Retroperitoneal lymph node,	4

Growths from two regions and not from the third:

	Per cent positive.
Heart's blood and cerebrospinal fluid,	4
Heart's blood and retroperitoneal node,	8
Cerebrospinal fluid and retroperitoneal node,	16
Growths from all three regions,	52

From these *retroperitoneal* data, we find that —

(1) At last a region has been found richer in organisms than the cerebrospinal fluid (but warn-

ing must be made that we are here dealing, perhaps, with too small a series);

(2) Retroperitoneal lymph nodes run ahead of the blood;

(3) There was one case (1414, dementia precox dying of pulmonary tuberculosis) in which the blood was positive when the other loci were negative;

(4) The combination of positive cultures from retroperitoneal lymph nodes and cerebrospinal fluid becomes again the most frequent binary combination (as in the case of the cerebrospinal fluid and mesenteric lymph node);

(5) Fifty-two per cent positive growths from all three loci approaches the percentage (55%) obtained with the mesenteric lymph node — heart's blood — cerebrospinal fluid combination.

CORRELATION WITH INTERVALS POST MORTEM.

As in former papers, let us glance at the cultivations in relation to the number of hours post mortem.

TABLE I.

BRONCHIAL LYMPH NODE SERIES.

Hours Post mortem.	No. cases.	Percentage of Cases giving Positive: Heart's blood.	Cerebrospinal fluid.	Bronchial lymph node.
0–2	5	60	80	40
2–4	4	75	100	50
4–6	5	40	40	80
6–12	11	72	72	72
12–24	16	39	61	61
24–48	6	83	83	67
48+	3	33	33	33

TABLE II.

RETROPERITONEAL LYMPH NODE SERIES.

Hours post mortem.	No. cases.	Percentage of Cases giving Positive: Heart's blood.	Cerebrospinal fluid.	Bronchial lymph node.
0–2	1	0	0	100
2–4	0	0	0	0
4–6	2	50	100	100
6–12	7	100	100	100
12–24	9	77	88	88
24–48	2	50	50	100
48+	2	50	50	50

Concerning the above tables (I and II) of percentages of positive cultures in the two series, it is evident that the curves are too irregular in the retroperitoneal series to warrant our having confidence therein, although, so far as the figures go, both Table II and the more reliable Table I correspond in general with our previous data. They seem to justify the conclusion that there are *no significant differences in the flora of these regions as cultivated post mortem.* We may repeat what Gay and Southard concluded in the first paper of this series, that if the invasions are post mortem, they must in the vast majority occur in the first two hours or so after death, that is, when much of the body is histologically alive.

With respect to the kinds of organisms found, it may be stated that no special endeavor was made to follow classification into its minutiæ. As in our former work, large use had been made of F. D. Chester's "Determinative Bacteriology," 1901, which follows Migula, 1896, with minor modifications. We have as yet made no special endeavor to establish pathogenicity against laboratory animals, unless classification stringently demanded animal tests (as in our frequent cultivation of bacterium anthracoides), or unless special clinical or anatomical features seemed to indicate possible pathogenicity of organisms. In a number of instances we failed to arrive at a diagnosis of the kind of organism present.

We cultivated the following organisms:

TABLE III.

INCIDENCE OF CERTAIN BACTERIA IN 69 AUTOPSIED CASES.

Organisms.	Heart's blood.	Cerebro-spinal fluid.	Bronchial node.	Retro-peritoneal node.
Streptococci,	2	2	1	—
Micrococci:				
Albus,	3	6	1	—
Other non-pigmented,	6	10	1	1
Aureus,	1	—	—	—
Other pigmented,	2	—	1	1
Planococcus tetragenus,	1	—	—	—
Unidentified cocci,	2	4	—	—
Bacteria, aërogenes group,	1	—	—	—
Hemorrhagic septicemia group,	1	2	1	4
Acidi-lactici group,	—	—	1	1
Rhinoscleroma group,	1	1	1	1
Ambiguum group,	1	1	2	—
Arborescens,	1	—	—	1
Anthrax group:				
Anthracoides,	13	16	17	4
Rugosum,	—	1	1	—
Truncatium,	—	—	—	1
Subtiliforme,	1	2	—	—
Bacilli:				
Coli group,	3	2	5	4
Typhoid group,	—	—	1	1
Cloacæ group,	1	1	—	—
Formosus group,	—	—	—	2
Delictatulus,	—	—	—	1
Devorans group,	—	1	—	—
Proteus group,	2	—	—	2
Arborescens,	—	—	—	1
Citreus,	—	1	—	1
Pammelii,	—	—	—	1

Perhaps the most striking thing in the table of specific incidence is the frequency of members of the anthrax group, and especially of bacterium anthracoides Kruse. We have felt that we might be dealing with a laboratory or ward invasion of bacteria analogous to the invasions of epidemics; except that the organisms must be counted as harmless or virtually so.

In the history of the Danvers laboratory, a number of such extensive invasions of saprophytes or quasi-saprophytes have been observed. During 1904–6, when Hoag was working on Ford Robertson's claim concerning general paresis and diphtheroid organisms, there happened to be a wave of diphtheroid organisms both in various loci of many living patients, but also in autopsy material. There even remains some doubt whether these diphtheroid organisms were entirely saprophytic. From time to time in Danvers Hospital from that date there have been periods when numerous diphtheroid bacilli made their appearance and proved a stumbling-block to the ready diagnosis of diphtheria.

During 1906-7, when Gay and Southard were collecting data concerning the first series of 100 cases reported in this connection, conditions ap-

peared especially favorable for micrococci and organisms of the coli aërogenes groups. In no case did we happen to cultivate diphtheroid organisms from cases of general paresis.

During 1908 and 1909, the Danvers conditions seemed most favorable for cocci. During the the period 1909–1910 just studied, the cocci seem to have given way once more to various bacteria and bacilli, among which bacterium anthracoides obtained a surprising lead.

Bacterium anthracoides in our hands has proved non-pathogenic to guinea pigs. (One somewhat startling exception was the rapid death of one guinea pig upon intraperitoneal inoculation of a similar organism isolated by Canavan from butter at the Boston State Hospital: further tests of pathogenicity remained consistently negative.)

The first cultivation of bacterium anthracoides was made in August, 1909, from 1335, a male of thirty-two years, dementia precox of fourteen years' standing. The case has been described in full by Southard as Case XIV in his study of the dementia precox group, etc. The patient showed certain congenital aplasias and had pulmonary phthisis. There was an acute inflammation of the jejunum and ileum, with acute swelling of mesenteric lymph nodes and acute degenerative nephritis. Bacterium anthracoides was cultivated from blood, cerebrospinal fluid, mesenteric and bronchial lymph nodes, and from the intestinal lumen and the bladder. There were thrombi of the superior longitudinal and left lateral sinuses.

The organism was cultivated from 27 cases in all, in the first five instances and in four later instances, from all three sources (blood, fluid, bronchial lymph node). In Case 1335 just mentioned, the organism was cultivated from six loci in the body (nine hours post mortem) and from 1398 also from six loci, viz., blood, cerebrospinal fluid, bronchial, mesenteric and inguinal lymph nodes, and from the middle ear. The organism occurred in but one locus of those sampled in 13 instances [1371 from bronchial lymph node (three hours post mortem), 1376 from cerebrospinal fluid (one hour post mortem), 1377 from bronchial lymph node (twelve hours post mortem), 1379 from blood (two hours post mortem), 1380 from bronchial lymph node (fifty-five hours post mortem), 1389 from bronchial lymph node (seventeen hours post mortem), 1391 from bronchial lymph node (five hours post mortem), 1392 from cerebrospinal fluid (eleven hours post mortem), 1394 from retroperitoneal lymph node (six hours post mortem), 1399 from blood (six hours post mortem), 1405 from prostatic fluid (eleven hours post mortem), 1406 from prostatic fluid (six hours post mortem), 1419 from blood (eleven hours post mortem)]. There were 5 cultivations from bronchial lymph nodes, 3 from blood, 2 from cerebrospinal fluid, 2 from prostate, 1 from retroperitoneal lymph node.

Coming from separate wards, belonging to both sexes, the cadavers with such organisms might be supposed to have obtained them in the laboratory, possibly in the shrouding process. We have, however, 1376 (one hour post mortem), in which the organism was cultivated from the cerebrospinal fluid, and both blood and bronchial lymph node were sterile. This case was one of sudden death at thirty-four in general paresis of a year's standing (decubitus). Case 1368 (two hours post mortem) showed these organisms in cerebrospinal fluid and in bronchial lymph node but not in the blood (old dementia precox, fifty-five years, infarcts of lungs, gangrene of leg, ileitis, colitis, albus in heart's blood). Case 1379 (two hours post mortem) showed the organisms in the blood only. There was bronchopneumonia and the bronchial lymph nodes were enlarged (sterile in culture); the cerebrospinal fluid yielded a coccus, micrococcus lactis.

Whether these findings represent a ward or laboratory invasion, or in any sense an infection, must be left to the future to decide.

SUMMARY.

I. Following the same technic adopted by Gay and Southard in their study of the post-mortem bacteriology of the *blood* and *cerebrospinal fluid* (100 cases) and that of Southard and Canavan in their study of the blood, cerebrospinal fluid and *mesenteric lymph nodes* (50 cases), the writers have studied the post-mortem bacteriology of 50 further cases, replacing mesenteric by *bronchial lymph nodes*, and 30 cases adding *retroperitoneal lymph nodes*.

II. The conclusion of two former papers is further established, viz., that post-mortem cultures from the *cerebrospinal fluid* are *more likely to yield growths than* cultures from *the blood*.

III. Just as the cerebrospinal fluid proved more frequently positive than did the mesenteric lymph nodes, so, too, the fluid remains more frequently positive than the bronchial lymph nodes (*nota bene*, the difficulty of taking cultures from the usually small available amount of lymph node material, *retroperitoneal lymph nodes*, however, are found *more frequently invaded than either blood or cerebrospinal fluid* in our series. The 84% positive retroperitoneal nodes (1912) are only exceeded by the 85% positive cerebrospinal fluid series of Southard and Canavan (1910).

IV. Both bronchial and retroperitoneal lymph nodes exceed the blood in frequency of positive cultures; the excess is, however, slight.

V. The *most frequent* two-out-of-three-positive combination, found in 1910, was the *combination of positive cerebrospinal fluid and positive mesenteric lymph node*. This led to the hypothesis of a *lymphogenous blood-borne invasion of organisms* lodging in the meninges and *later killed out* in the blood by bacteriolytic substances.

VI. This condition is reversed in the present series, where the *combination of positive cerebrospinal fluid and positive bronchial lymph node* is very rare.

VII. The exceptional nature of our mesenteric node results was suspected when they were obtained and was thought to depend somewhat upon the selected character of the nodes tested (large, succulent or easily palpable nodes were chosen for culture and cases without such nodes

omitted from the series). In respect to bronchial and retroperitoneal nodes, fewer cases had to be omitted on the score of unavailable nodes. It may perhaps be surmised, then, that the majority of bronchial and retroperitoneal lymph nodes examined were executing their defensive duties with considerable success and were not letting through great numbers of organisms. The majority of mesenteric nodes in our series were doubtless reactive to unusual conditions and were permitting more organisms to get through the lines.

VIII. The retroperitoneal nodes are on a different footing from the bronchial nodes in that they more frequently contain organisms (84% *vs.* 64%). The combination of positive retroperitoneal node and positive cerebrospinal fluid is the most frequent two-out-of-three-combination (recalling in this respect the mesenteric series).

IX. Positive growths from all three loci were found in (*a*) mesenteric node combination, 55%; (*b*) retroperitoneal node combination, 52%; (*c*) bronchial node combination, 35%.

X. These combinations of growths are of interest whether one subscribes to the intravital or to the post-mortal invasion theory, since without doubt the tissues and their juices, including blood bacteriolysins, remain active for some time after apparent death.

XI. Our results, as before, incline us to the idea of intravital significance of the organisms found. The statistics show similar frequencies early and late post mortem, and the same high percentages of sterile cultures which the post-mortalist finds it so hard to explain.

XII. Tables are presented showing the main types of organism cultivated. Special remark is made of a protracted period in which an anthrax-like organism kept appearing in certain autopsies. The question of ward and laboratory epidemics or pseudo-epidemics of saprophyte forms is brought up.

XIII. On the basis of this work, important researches into intravital conditions can be imagined, especially in the field of bacteriemia and "low grade sepsis."

IMMIGRATION AND THE MIDWIFE PROBLEM.*

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THE interrelation of immigration and midwifery may not seem patent at first glance. A moment's thought, however, will show that in the problems relating to the restriction of immigration and the restriction of midwifery there are many points in common, not the least of which is the fact that both subjects are constantly suffering from criticism based upon inadequate and unintelligent study. The legal status of the immigrant and the legal status of the midwife also present points of contact.

At the present time the influx of immigrants is greater from the countries in Southern Europe, where the midwife exists as an established social institution. In 1910 over 20% of our immigration was from Italy, 25% from Austria Hungary and 18% from Russia. These are suggestive of the nationalities whose women are wont to make use of the midwife. In this country midwives are largely used by the Mexicans, Italians, Swedes, Syrians, Hungarians, Bohemians, Slavs, Poles, Finns, Russians and Austrians. This broad-spread national usage within this country makes apparent the relation between immigration and the midwife problem, and bids us consider for a moment what relation immigration has to the general subject of midwifery.

It is impossible to glean from immigration statistics any knowledge as to the number of midwives who enter this country, nor, indeed, is it possible to get any adequate information upon this point from an examination of the records of the various states of this country. The confusion which exists may be illustrated by the following: 21 cities in the United States report 3,360 midwives; 11 states report 3,708 registered midwives, while 8 states report 4,808 midwives as practicing in the state. Twelve states at least are frank enough to admit that they do not know anything about the midwives that are in their states; how many there are, or even the number of births that are reported by them. A study of the midwives registered in New York City shows that of 1,344 midwives, only 9.1% were born in this country: 26.4% were Italians, 20.6% Austrians, 23.1% Germans and 15.3% Russians. An investigation of 223 midwives in Chicago a few years ago showed of this small number 84 to be Germans, 36 Polish, 31 Bohemians, 13 Swedes and 8 Italians.

This brief reference to the nationality of the midwives gives some index of the relation of immigration to the midwife problem, but the problem has just begun in many ways. It is a striking fact that at the present time our immigration as indicated in 1910 consists largely of males from Italy, Russia, Roumania and Bulgaria, while the older type of immigration, such as the Scotch, Irish, French and German, reveals a more equal proportion of the males and females. This is well illustrated by the fact that for the year ending June 30, 1910, the immigration of Bulgarians, Servians, Montenegrins showed 14,253 males and 877 females.

	Males.	Females.
North Italians,	23,754	7,026
South Italians,	151,249	41,424
Russians,	14,918	2,376
Roumanians,	12,602	1,597
Scandinavians,	35,019	17,018
Scotch,	15,546	9,066
Irish,	21,075	17,307
French,	11,715	9,392
Germans,	42,191	29,189

In the present type of immigrating nationalities this disparity of the immigration of the sexes suggests that with the betterment of the economic conditions of the males in this country, a greater proportion of the females immigrate into this country, or else the prosperous males return to

* Read before the American Academy of Medicine at Atlantic City, June 1, 1912.

their own country. The facts in general show that the former hypothesis more nearly approaches the truth. This means that within a few years there will be a large influx of females from Southern Europe, matrimony will be increased, and in consequence there will be a demand for a larger number of midwives. In other words, the present midwife problem in this country will be intensified in the future through immigration unless some check, at present not in use, tends to change the history of immigrants. All plans for the elimination of the midwives are at this time out of the question as illogical and impractical.

In their home countries, the women of various nations make free use of the midwives. The reason for this exists in tradition of many years' standing, and likewise the existence of a legal status of the midwife in the various countries. The midwife of the Heimath is a woman of recognized economic position, with more or less adequate training and under government supervision. For example, the obstetric training which is given to midwives abroad is usually under charge of the same professor of obstetrics who gives the course of instruction to the medical students, and the midwife receives an excellent obstetrical training. When one realizes the sad commentary upon medical education as related to midwifery, as pointed out in the article of J. Whitridge Williams, in which he says, "One half of the answers [from professors of obstetrics throughout the United States] state that ordinary practitioners lose proportionately as many women from puerperal infection as do midwives and over three quarters declare that more deaths occur each year from operations improperly performed by practitioners than from infection in the hands of midwives," it is well to think of the education that is given to our immigrant midwives. Dr. Barton Cooke Hirst practically states that our obstetric training is below the standards of almost all other civilized countries. Only three schools in America, according to this teacher, have facilities to meet the demands of any country. Our immigrant midwives who have received foreign training are certainly more capable and efficient in obstetrical work, at least when they come to this country, than are the graduates of our own medical institutions. The Prussian midwife receives professional training on the average of nine months; in France, at least one year; in Italy, two years; Switzerland, six months; Japan, one year; Netherlands, one to two years; Belgium, two years; Scandinavia, one year; England, six months to nine months. England has an elaborate system of training, supervision and control of the midwives. It is but natural that under such a social system the midwife should have a definite legal, economic and social status and that the people requiring her services should have confidence in her ability to give adequate care.

Such a state of affairs does not exist in this country. There are practically no legal standards; there is no recognized system of supervision or control and no plan of education has been adopted in any particular state of the Union. Wherefore, the foreign trained midwife must needs come into competition with the graduates of the midwife diploma mills. Her status has altered and naturally or unnaturally, she is relegated into the position of a social outcast, scorned, maltreated, libeled and ignored, depending upon the particular state in which she takes up her work.

That there is a clientele awaiting her, anxious to make use of her services, is manifest by the large proportion of births which are registered by midwives. For example: 47% of the births reported in Chicago were under control of the midwives; 40.7% of the births of Baltimore; 45% in New York; 53% in Jersey City; 53% in Bridgeport; 24% in Philadelphia, and 5% in Omaha. This is merely suggestive of the fact that the total number of births where reports are available shows that the midwives are in attendance in from 5 to 53% of the confinements in various cities of the Union. It seems a blind position to neglect to appreciate the value of a class of the community which is responsible for the care of mother and child in at least 45% of the births of this country.

Another striking thing comes to mind. The immigrant midwife coming into this country enters into competition with physicians whose training frequently is not as good as her own. Under the stress of economic necessity their fees become low and probably average between $5 and $8 per case. In addition to their technical care, they give nursing attention and serve in the capacity of housekeeper, so that their services are far more valuable to the household, considered in its general aspects, than are the strictly professional duties performed by the physician competing for the same class of patrons.

The foreign born and trained physician, however, who immigrates to this country on the same boat with the midwife, and who must needs take up obstetric or medical work, is not permitted by the laws of this land to enter into the practice of medicine or surgery in most of the states of the Union until he has passed a state examination. To illustrate: during 1910, 365 physicians immigrated to this country, which number was composed of 7 Mexicans, 6 Russians, 13 Scandinavians, 14 French, 42 Scotch, 42 Italians, 40 Germans and 86 English physicians. These physicians, representing for the most part men trained by the same type of obstetricians as gave the professional training to midwives from their own nationalities, are not permitted to take up the practice of medicine, of which midwifery forms a part, without having their qualifications passed upon by representatives of the state.

The man midwife, as such, does not appear to be a recognized institution, and it is doubtful if the physician unable to pass the state examination as a doctor would desire to take up the work as a midwife, which he might readily do, inasmuch as he has had the adequate training, and there are no laws to prevent him from so doing.

As the result of a questionnaire sent out to the

State Boards of Health, replies were received from the officers of 42 states. Only 14 admitted having any laws or regulations, state, county or city, relating to the practice of midwifery; only 10 could give any information as to the number of midwives registered in their states; while only one could give any report as to the number of births reported by midwives during the year 1910. In two states the presence of midwives is not officially recognized, though in both of these states midwives are signing birth certificates.

At the present time, as far as we know, there are only two states, Ohio and Utah, that concede the existence of schools for midwives, although it is well known that numerous schools giving diplomas in midwifery exist throughout the country. Recently a school for midwives has been established in New York City to give thorough training to midwives. It is absolutely essential to have provision made for education before it is possible to establish standards for the educational and professional qualifications of midwives. Of 1,344 midwives in New York City, 38% hold diplomas from foreign schools. Of 150 Baltimore midwives, 42 had diplomas from foreign schools, and in Chicago, of 223 midwives, 67 had diplomas from foreign schools. Of the 1,344 midwives in New York City, however, 42.6% presented diplomas from schools within the United States. Apparently the question of education is being taken up by the midwives in this country, and also by those men who see in this class of people a chance for exploitation, although it cannot be gainsaid that some obstetrical training is better than none.

Much of the discontent with the service of midwives has arisen from a lack of understanding of their necessity and the traditions for their existence. With a lack of legal status, with real freedom from legislative control, it is not unnatural that a midwife should undergo degeneration in this country. Yet it is a striking fact that in New York City 29 of the midwives arrested had a United States diploma, while only 9 were arrested having a foreign diploma, showing that apparently the standard of morality created by the United States diploma mills is not comparable with that built up by the foreign schools, or else the foreign trained midwife is more shrewd in her illegality and less frequently detected.

These figures are substantiated in Baltimore, where 48 out of 100 midwives were suspected of criminal procedures, but 25 of this number were Americans or negroes out of a total number of 80 belonging to these two groups.

Criminality among midwives is presumably all too frequent, although probably it occurs in no larger percentage of the cases than exists among the types of physicians with whom the midwives are competing. As immigration is designed in part to limit the entrance of criminal classes to this country, it is desirable to know what proportion of the females coming to this country are midwives and how many are convicted for performing illegal operations within the three-year period, so that prompt deportation might occur whenever such conviction was secured.

Immigration presents a problem as regards infant mortality, and in this phase of the problem the question of immigrant midwives deserves full consideration, inasmuch as she has the multiform position of medical attendant, nurse, housekeeper and general adviser regarding the care of the infant whom she has brought into the world during the period of her attendance upon the mother.

Dr. Newsholme recommends the adequate training of midwives as an essential feature of every program designed for reducing infant mortality.

That midwives are effective in preserving the lives of mothers that they later may take care of their own children may be illustrated by figures gleaned from Italy and England. In Italy the deaths from puerperal fever in 1887 were 8.5 per 100,000. In 1890 a law providing governmental control of midwives was enacted. The death-rate from this single cause dropped to 3.2 per 100,000 in 1902. Deaths from all other diseases of pregnancy, parturition and the puerperium dropped from 15 per 100,000 in 1887 to 5.3 per 100,000 in 1902. In England, the Midwives Act went into effect in 1902. The deaths from puerperal fever for the fifteen years previous to 1903 varied from 10.9 to 20 per 100,000 females living; in 1903, after the act went into force, the rate from this cause dropped to 9.7, and in 1907 it had fallen to 8.1 per 100,000.

In order to appreciate the relation of immigration to midwifery, it is necessary to ascertain how many midwives are admitted to this country. In order to protect the country from the unscrupulous midwife, it is essential that a system of education, supervision and control be established throughout the various states of the Union. Only by education, standardizing, legislating and controlling the immigrant midwife will it be possible to prevent an increase of the dangers now attributed to midwifery as it at present exists among our constantly increasing immigrant population. The increase in midwives depends upon the increase of female immigration. The standards of midwifery in this country should be raised at least to the standards existent in the countries from which the immigrant midwife comes. By the further control of immigration and the securing of information relating to the educational, professional and legal status of midwives, it will be possible to place the midwife problem in an intelligent manner before the American public.

THE EFFICIENCY OF THE OPERATIVE POPULATION OF A TEXTILE CITY AS VIEWED FROM A SURGICAL STANDPOINT.

BY MILNE B. SWIFT, M.D., FALL RIVER, MASS.

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FALL RIVER, MASS., is to-day the largest cotton manufacturing city in the United States. The operatives in the mills number approximately

thirty thousand, or one quarter of its entire population.

Eliminating the humanitarian viewpoint, one of the chief responsibilities of the employer is the maintenance of the efficiency of the help, who work in the midst of high speeded and dangerous machinery, which is necessary for the successful continuance of this type of manufacture.

The physical efficiency of the operative in relation to accidents depends upon certain obvious conditions which are influenced by important factors, chief of which are:

First, Hours of labor.

Second, Proper surroundings at work.

Third, Suitable safety devices on dangerous machinery.

Fourth, Healthy living conditions out of work.

Fifth, Instructions as to the dangers of the particular occupation.

Sixth, Intelligent obedience of these instructions.

Seventh, Suitable and immediate surgical attendance after injury.

The laws now on our statute books deal in a most efficient manner with the first three factors.

The laws governing the living conditions are very inefficient. The expense of pleasant and healthy living conditions is often prohibitive. The class of operatives injured most frequently are those of recent immigration, who understand little or nothing of the proper mode of life. As a rule, they live on good food, fairly cooked, but frequently and usually sleep in a crowded room where the air is vitiated by the rebreathing of numerous sleeping companions.

Thus ignorance frequently causes the operative to go to work with brain clouded and senses numb because of a non-observance of the first rule of good hygiene, for almost invariably this population sleep with closed windows.

How important this factor is with respect to accident is impossible to definitely estimate, but as a predisposing factor it must have considerable bearing.

The fifth and sixth factors are largely individual ones and rest with instructor and pupil. For their own interest, if for no other, employers are cautious that a person starting on unfamiliar machinery receive the proper instructions before being employed.

The seventh factor is largely a matter of personal experience with the kind of injuries sustained in this industry, and is of the utmost importance to the injured. It is of the utmost importance that not only the injury be treated, but also that in this treatment it should be remembered that on the result of this treatment depends the livelihood and efficiency of the patient, in many instances.

During the year 1911, 1,198 injuries were treated at the Elizabeth Stevens Surgical Out-Patient Clinic of the Union Hospital in Fall River. These injuries occurred at the different hours of the day in about equal numbers, which would seem to indicate that in their relation to the injuries of the help in the mills, the hours of employment have but little causative effect.

Of these injuries, 804 occurred in the textile industry proper. Three hundred and ninety-four occurred in allied industries and other mechanical pursuits.

In the mills of this city it is an invariable rule for an injured employee to receive medical attention for even the simplest abrasion. Certainly 99% of all injuries receive medical attention, and 99% of those receive their attention at the Stevens Clinic. On the other hand, in the other occupations it is not the rule to secure medical attention except for the more serious injuries. Probably not over 40% of the injured receive medical attention. This latter is reasoned from the fact that it is customary for these injuries to come to us a number of days after the accident, and frequently in a foul and septic condition. Of this 40% I should judge that 90% came to us for treatment, though I have no accurate way of deciding this.

The number of cases admitted to the house because of the serious condition of the patient was 142. Most of these we again treated after they were sufficiently well to have out-treatment. In each case of house admittance the seriousness of the case was obvious at first attendance. Of these cases, 11 only were injured in the mills. I have been unable to determine that we had a single death at the Union Hospital due to mill injuries.

I consider this a striking commentary on the safety of the cotton industry as an employment. When one considers the inherent dangers of working in the midst of massive and dangerous machinery, 2.6% of injuries and no deaths is a splendid comment.

This is a fair statement of conditions as to injuries in the textile trade in this city. There were no disasters, nor was any particular care other than the ordinary used to prevent accidents.

The ratio of injuries between men and women was about 6 to 1; that of the upper extremities, about 32 to 1 of the lower; that of one to both upper extremities, 145 to 1; of one to both lower extremities, 205 to 1; of the right and left upper extremities, 1 to $1\frac{1}{57}$; of the right and left lower extremities, 1 to $1\frac{2}{29}$; of open to closed wounds, about 6 to 1.

There were 197 cases of injuries to the head and neck treated, of which 18 occurred in the mills. Twenty were treated for injuries to the chest, 12 for injuries to the abdomen, 13 for back injuries, 2 for injuries to the genitals, and 1 for injury to the rectum.

There were 5,788 dressings done, or an average of over five per patient.

Every case where the injury was serious to life has occurred in the male operatives.

Of the 1,050 open wounds, 671 were in the upper extremities, and 164 in the lower extremities.

It is in the open wounds only that the danger to the efficiency of the mill worker lies. The efficiency of the worker depends surgically more upon good working hands and fingers than on any other one condition.

Also the kind of treatment which the patient receives means frequently the difference between efficiency and inefficiency.

By far the great majority of the open wounds on the hands and fingers are severe lacerations and traumatic amputations, involving one or more fingers. Inasmuch as the condition of these parts usually decides the question of efficiency, it behooves the surgeon to use judgment and caution in treating these wounds. Every eighth of an inch that can be saved of these parts helps to maintain the efficiency of the individual and the community.

There is from the injuries a necessary temporary loss of constant efficiency. The length of time the patients are under treatment is from three days to ten weeks, and in occasional instances much longer. The average, however, is about three weeks, which, during 1911, meant forty-eight years to one person, or the full working life of two people.

Of the open wounds of the upper extremities, 671 in number, 432 were traumatic amputations or lacerations of the fingers severe enough to be treated as such.

In the treatment of these wounds the temptation is to make a classic operation, secure primary healing and a handsome stump which is pretty to look upon but absolutely useless to the patient.

After considerable experience, much cogitating and discussion, we have at the Stevens Clinic concluded that except in those instances of the rarest occurrence, these injuries should be treated by the open method and no flap operation performed.

Our reasons were that, as a rule, whenever a flap operation was done, the patient lost, besides the part already destroyed as a result of the accident, the rest of the phalanx. This decreased the efficiency by the amount necessary to remove to make the flap. By treating these wounds without flaps, the stumps do not look quite as well, but the length of the finger is at least what it was. All remaining joints are preserved, and the wound takes only one third longer to heal. We have never seen a painful stump after healing, and a good cushion usually results.

The method of treating these injuries at the Stevens Clinic is as follows:

Immediately upon admittance the open wounds are examined by the house officer and a history is taken of the accident.

In a vast majority of the cases which come to us, the elements of infection are already present, and it is our object to overcome this condition in the shortest and surest way possible. This is done, where the parts permit of it, by cleaning the wounds with spirits of turpentine. This is used on sterile gauze. No scrubbing brush is allowed, no matter how severely dirty the wound or its surrounding parts are. We believe the scrubbing brush to have serious elements of danger in it, when used as it would have to be used with these patients.

Turpentine is used because of its strong solvent powers for grease, and will remove the crude dirt with which the wounds are usually filthy.

After the wound has been thoroughly cleansed with this antiseptic, alcohol 95% is used. This because we have found that in time the turpentine when used alone frequently causes a dermatitis. Alcohol effectively checks this tendency.

The turpentine causes no pain, and the alcohol pains but for an instant. Both are cheap and both are efficient.

This treatment applies to fresh wounds only.

After this procedure, a thorough study of the injured member is made.

If the injury be a traumatic amputation of either fingers or toes, and this is the only amputation that is treated in the out-patient clinic, or is a laceration, these two injuries comprising the larger part of the open wounds, or of all the wounds treated, treatment is instituted accordingly.

If bone is protruding it is removed to the level of the fleshy parts with bone cutting forceps. With rongeurs the rough edges are smoothed down. A single silkworm gut stitch is then taken in the center of the wound to insure the bone being covered. The sides of the wound are left open for drainage. A 95% alcohol dressing is then placed over the wound, and oiled paper over this with a bandage. The arm is put in a sling, and the patient is ordered to report the next day, or sooner if the wound is unduly troublesome. The patient is strictly enjoined not to work, and not to remove his dressings for any cause.

After the first part of the dressing in lacerations, if they are extensive, an occasional stitch is taken to prevent too great gapping, and the wound dressed, and the patient instructed as in the amputations. Work is absolutely forbidden the patients until complete healing, for fear of infection.

There were absolutely no infections in fresh wounds treated after this manner.

During the early part of the treatment of these wounds at the Stevens Clinic, there were sutured 144 wounds, and we had seven infections. In only one instance was the infection serious. It was found, however, that the wound which was sutured remained under treatment as long as the same type of wound left unsutured, the resulting deformity was just as great and efficiency was not increased. Therefore the adoption of the open method.

Wounds which come to us already showing infection extending beyond the injury are treated by careful incision, care being taken not to injure the tendon sheaths, — bichloride soaks and dressings of a 1 : 2,500 strength, wicking of gauze, and wet bichloride dressings.

The compound fractures of the phalanges, of which we see a large number, deserve some attention.

These are treated as the lacerations in the cleansing process. The fragments are then reduced, and the same dressing is used, with the addition of such splints as are necessary to keep the fragments in position. This treatment has

given uniformly good results. These cases are frequently referred to the massage clinic for after-treatment, with ofttimes splendid results in function. Of course if the blood supply is destroyed, it then becomes necessary to treat the injured member in the same manner as a traumatic amputation.

Under this treatment we are able to report that 14, or 1.7%, were unable to resume their former occupation. This is .04 of 1% of the total mill working population which was rendered permanently inefficient for their vocation, or at least that per cent of the cases treated at the Stevens Clinic, or .01% of the total population of the city.

CONCLUSIONS.

In Massachusetts the permanent loss of efficiency due to the textile industry is small.

This is due in part to the laws which govern the industry, and to the care used voluntarily by the employers and employees.

That the hours of labor as it governs the physical condition of the help has little or no bearing on injuries, as these injuries happen with about equal frequency at all hours of the day.

That temporary loss of efficiency is considerable.

That temporary loss of efficiency is great, not necessarily because of the severity of the injuries, but rather because of the care necessary in the treatment of the injuries to ward off the effects of infection.

That the open antiseptic treatment of the open wounds is the only logical treatment, and produces most excellent results in maintaining the efficiency of the industry.

That the cotton manufactories in Massachusetts do not cause as great a loss of efficiency to the community as do the other mechanical trades.

INSTITUTIONAL DENTISTRY. METHODS. RESULTS.

BY FREDERICK A. KEYES, D.M.D., BOSTON.

AT the present day there is great agitation by medical and dental men for the improvement of the oral conditions existing among the public school children. The dental profession has always been cognizant of the importance of oral cleanliness in relation to the health of the human body, but a few medical men with whom I have talked seem rather skeptical of its importance. I have therefore gathered together carefully these statistics, showing the relation of the condition of the mouth to infectious diseases.

I hope that this evidence of the elimination of infectious disease by having the mouth and teeth treated will arouse the medical profession to the great importance of oral sepsis. Even though the results obtained by two years' dental treatment may seem merely a coincidence, I am confident that such is not the case, and that results equally good are being obtained by all dentists treating adolescent children.

In November, 1910, I was requested by Mother Rose, Superior of St. Vincent's Orphan Asylum, Camden Street, Boston, to visit the institution to see what steps would be necessary to establish a dental infirmary for the care of the children's teeth. Within a week a fully equipped infirmary was established on the third floor of the home. A large bathroom, having all the desired requisites, such as running, hot and cold water, hardwood floor, one large window, plenty of light and sun, was the site chosen for the operating room. Owing to pecuniary limitations, a second-hand chair and engine were purchased, together with an essential supply of dental paraphernalia (brackets, brushes, etc.), all of which netted $125.

In order to demonstrate the cost of establishing dentistry in an institution for a limited sum, $125, the items are given below:

One chair and engine, sterilizer, brushes, etc., for one year, cements and amalgam for one year, medicinals, miscellaneous, cotton rolls, napkins, card system, sand paper, etc., initial sum,	$125.00
Supplies for eighteen months,	66.63
	$191.63

Instruments were supplied by the dentist doing the work.

The method of accomplishing work at this institution is as follows:

Each child was given a card, with name, age and date of entrance into the home, resembling in all other respects a typical dental card system. Two children, aged twelve to thirteen years, were chosen as assistants to the dentist in charge. The duties of these children were those of any dental nurse. Each child had a clean white gown corresponding to the gown worn by the dentist. The first day was spent in teaching them asepsis in the care of instruments and hands. They were taught to "scrub up" before and after each patient, also to remove instruments, which were deposited on the bracket by the dentist after being used in one child's mouth, to the sterilizer, which contained boiling water, and to allow instruments to boil for five minutes; then to remove instruments and to immerse them in 70% alcohol, from which the dentist took them to use in the mouth of the next patient. The "scrubbing up" process consisted of the dentist and his two assistants scrubbing their hands thoroughly for one minute with soap and water, and, without drying, immersing them in a pan containing 70% alcohol. Each child upon sitting in the dental chair was given a clean towel. A separate paper napkin for each child was used on the head-rest of the dental chair. On a settee outside of the operating room ten or fifteen children were always sitting, and at a given signal one would enter the infirmary.

The presence of two children as assistants was a great aid in gaining the confidence of frightened children. A child refusing to sit in the dental chair was first placed on a common chair. A mirror was then used by one of the little girl assistants, to prove to the child that no pain would ensue from sitting in the real dental chair. Cases

where attempts to work in the child's mouth would prove futile were made easy by the presence of the little girl assistants. It was found that coaxing the children was a waste of time, and that a mild sternness gave better results.

Monthly lectures were given in the schoolroom to the upper grade children on the anatomy, physiology and pathology of the teeth. The children were required to write compositions after these lectures, to aid in their hygiene work.

Below is given a typical composition of a child between twelve and thirteen in the institution on the anatomy of the teeth:

LECTURE BY DR. KEYES TO THE CHILDREN OF ST. VINCENT'S.

There are twenty baby teeth and thirty-two permanent teeth.

The interior of the tooth consists of dentine, which is a bone-like substance.

As Dr. Keyes said, that we should have our baby teeth pulled out by the dentist, and not try to pull them out ourselves.

The fang is covered by a thin layer of true bone (cement). In the center is the nerve, which is filled with blood vessels, when they are irritated they cause much pain.

We should wash our teeth morning, noon and night, and use powder on them but once a day.

When the enamel is injured, it cannot be restored again. Therefore we should not crack nuts, or try to break anything hard.

The teeth are fastened to the gums by roots, which sink into bony sockets like a nail being driven into a piece of board.

The tooth consists of dentine, cement and enamel.

We get our first permanent teeth when six or ten years of age, called molars, and between twelve and fourteen years of age, second permanent teeth called second molars, and we also get our wisdom teeth when nineteen or twenty years of age, as Dr. Keyes says when we are going to get married or become a nun.

When the teeth decay, it first starts by a little hole in the tooth, and the food which we eat gets into the hole, and the hole becomes larger and larger caused by an acid, until you can get your tongue in it, and this makes a foul, bad breath. The nerve finally starts to die down, and keeps dying until it gets to the root, and then we have a howling toothache.

Another method of instilling the care of the teeth into the minds of the children was by offering a prize of candy to the child who kept her teeth and mouth the cleanest for one month. This aroused competition and a keen interest which could not have been obtained in any other way. The morning and evening drill, where the older girls of fourteen years demonstrated to the younger children how to brush their teeth, was still another method. Squads of children were formed under the supervision of the older girls who had proven faithful in the care of their teeth and who were ranked as captains. It was the duty of these captains to report to the dentist's assistants any child under their charge who omitted brushing her teeth. Separate tooth brushes and tooth powder for each child were placed in a cabinet constructed for the purpose, containing 250 compartments. Monthly these brushes were inspected by the dentist, and all dirty brushes were discarded. Large signs were posted, such as, "A Dirty Tooth Brush is Worse than None," "Cleanliness is Next to Godliness," "A Clean Mouth Means a Healthy Body." The mouth wash prescribed for the use of the children was a teaspoonful sodium bicarbonate in three fourths of a glass of cold water, to be used before going to bed.

Every three months the children were lined up, and passed by the dentist one after the other, and a more thorough examination than that of the first day was made, using a separate mouth stick on each child. Each child was given a red, blue or green card, according to the condition found in her mouth. These cards were distributed by the dentist's assistants at his call. The red cards signified an acute abscess; blue, exposed pulps; green, dirty teeth or sloughing gums. It took just two hours to examine the teeth of over two hundred children in this manner.

STATISTICS OF WORK DONE FOR FOURTEEN MONTHS.

Total number of different patients examined,	349
Total number of cleanings,	272
Total number of cement fillings,	35
Total number of amalgam fillings,	72
Total number of cement amalgam fillings,	69
Total number of temporary fillings,	130
Total number of oxphas cu fillings,	9
Total number of teeth extracted (temporary),	290
Total number of teeth extracted (permanent),	131
Total number of abscesses opened,	42
Total number of gums cut for permanent teeth,	19
Total number of plastic operations,	3
Total number examined and treated,	1,421
Total number of fillings (including temp.),	315
Total number of teeth extracted (including temp.),	421
Total time spent,	210 hours.

The rapidity of the decay of deciduous teeth over permanent teeth was marked. Whether or not the decay of deciduous teeth is purely a physiological action is not known, but to observe the ravages in the mouths of many of these small children, it would be hard to believe that it was solely a pathological condition. One reason for this rapid decay is the fact that in the physiological process of the absorption of the roots, the blood and nerve supply becomes diminished, and the teeth become more susceptible to the multitude of bacteria always present in the mouth. Out of three hundred children, there was not one per cent who had even had any dental care, and there was not one child but needed treatment.

In the extraction of permanent teeth, a tooth was not sacrificed unless the crown was all decayed to the roots. Cocaine ½% was the only anesthetic used, and that only in extraction of permanent teeth. Another example of economization of time was in the method of use of cocaine, six or seven children having the cocaine injected one after another, so that when the gums of the seventh child were cocainized, the first child's gums were anesthetized for extraction.

When the work was completed in the mouth of a child, the tooth treated was called to the atten-

tion of one of the assistants, who marked it down on the card system. After a month, without my pointing to picture of a tooth on the card, the assistant could mark it alone.

Twenty-five per cent of the children required orthodontia. Of this amount all had either adenoids or tonsils, and were recommended to Dr. Drummey, the Home physician, for operation.

The following interesting statistics show the relation of oral prophylaxis to infectious diseases:

RECORD IN REGARD TO INFECTIOUS DISEASES.

	1907–1908.	1908–1909.	1909–Nov., 1910.	Nov., 1910–April, 1911.	April, 1911–May, 1912.
Diphtheria,	6	2	1	0	0
Mumps,	8	3	10	4	0
Scarlet fever,	17	8	12	8	0
Pneumonia,	3	5	4	6	0
Measles,	24	50	40	25	0
Tonsillitis,	19	16	8	3	0
Whooping cough,	7	2	2	0	0
Chicken pox,	15	17	10	6	0
Typhoid,	0	0	0	0	0
Croup,	4	0	0	0	0
Spinal meningitis,	0	0	0	0	0
Scarlatina,			0	0	0
Bright's (acute),					0
Hemorrhage,					0
Tuberculosis of eye,					1
Tuberculosis of lungs,					1
	103	103	87	52	2

In the year 1905–1906 the Home was in quarantine for over three months, — an epidemic of scarlet fever of over 75 cases.

A comparison of these statistics will show that in six months after work was begun at the institution the ratio of infectious diseases was reduced 59%; and that in the subsequent year this ratio was reduced to approximately 2%, a most notable decrease.

Is this absolute elimination of disease for a period of twelve months a coincidence? It may be so. Other factors may have brought about this remarkable condition. But certainly no such condition ever existed in St. Vincent's Asylum prior to the installation of a dental infirmary. Of course two years more will produce much more conclusive evidence, although one may see even now that the benefit of dental work is not over-estimated, as far as the elimination of infectious diseases is concerned.

THE MASSACHUSETTS REFORMATORY METHOD OF DIFFERENTIATING DEFECTIVE DELINQUENTS.*

BY GUY G. FERNALD, A.M., M.D., CONCORD, MASS.

THE assertion has been made repeatedly by criminologists and others that our prisoners and misdemeanants include a certain number of mental defectives or degenerates. This assertion needed demonstration or disproval, and as the reformatory offered an excellent field for pursuing such an original investigation, the problem was undertaken there over three years ago. A detailed report of the findings appears in the April number of the *American Journal of Insanity* for the current year. This bit of work seems to have been a very timely one, as last year Massachusetts became the pioneer state to provide for the segregation of mental defectives among delinquents, and in the not distant future her alienists who deal with the feeble-minded will be deciding which prisoners shall be committed for segregation and special training as defectives instead of being sentenced with the fully responsible delinquents.

The problem is the demonstration of the personnel of a class having a certain inferior degree of efficiency in life or ability to succeed. The members of this class have less ability or efficiency than those who do succeed in supporting themselves honestly, and more ability than those who should be cared for in institutions for the feeble-minded; i. e., the persons to be differentiated are smart enough to get into legal and social trouble, but are not smart enough to keep out of such.

The means for examining subjects rapidly was found by combining two forms of procedure: (1) the collection of clinical data and (2) the application to each subject uniformly of a small group of psychological tests and from the test scores the calculation of the relative standing of each subject in the series. The tests were selected or devised to meet the following requirements. They must test as many departments of mental activity as possible. They must not introduce the disturbing element of previous training, and must be independent of the language factor. It must be possible to score results with a single numerical value. Not too much time may be given to the application of any one test, and the apparatus must be easily procurable and portable. The process is simply an adaption of the psychologist's methods to the solution of the alienist's problems.

While the clinical method of examination is indispensable, as it gives information of past events, and something of their sequence and importance, it is not exact in a scientific sense and its data are not susceptible of reduction to a workable, mathematical basis of comparison. Another invaluable factor in the clinical material which the psychological examination cannot give is an insight into moral status. Morality or moral stamina may not, as yet, be measured successfully by tests, and the only direct insight we have into a man's morals must come from his deeds as expressed in his clinical history. But facts of clinical history seem not to be reducible to a form susceptible of mathematical comparison. By psychological procedure, however, we may test intelligence as thoroughly as our time permits, and the scores may be in exact form and measurable and lend themselves to the computations of the science of mental measurements; so that expressions of relative efficiency may be calculated, tabulated and filed for reference. Each method of examination, the clinical and psychological, checks up and supplements the other admirably, so that in effect we have two avenues

* Read before the Massachusetts Society of Examining Physicians, May 28, 1912.

of approach to the same conclusion — almost the definiteness and certainty of the surveyor's cross lines.

The result of the uniform application of these two forms of examination to a representative group of one hundred prisoners has been to show that a remarkably close parallelism exists between the findings of the two methods; e. g., certain subjects are shown by the clinical examination to be of a lower grade of efficiency than others. When these same subjects were assigned a definite relative standing by the computations on their test scores, the definite relative measures were always low ones. If the clinical examination tells us that the efficiency is small, the psychological examination tells us how small it is in terms of the efficiency of the other members of the group. While the two methods of examination supplement each other so happily, their fields of usefulness are by no means co-extensive. Clinical information in general is indispensable in demonstrating all forms of mental deviation, that of the low grade imbecile as well as that of the high grade. We cannot do without it in examining for insanity, criminality or for neuropathic divergences.

The field of usefulness of any one group of psychological tests by which relative standing is calculated is limited. The *method* is capable of application for a wide variety of purposes, it is true, but for application to differing groups of subjects, appropriate sets of tests must be used. Tests suitable for the examination of prisoners of a mental age of sixteen, e. g., are not adapted to the examination of an older group. The Binet-Simon tests may be made serviceable for subjects of an age to which they are adapted, but they are not adapted to test any of a mental age above thirteen. The group of tests which seems to serve its purpose very well in the hands of the author would serve in another's hands as well for subjects of the same mental age approximately; but would not serve well if applied to twelve-year-olds. So, tests must be carefully selected and be adapted to the mental age of the subjects to be examined.

This group of psychological tests and other groups devised for a similar purpose are highly specialized instrumentalities, and no highly specialized instrumentality may be diverted from its particular use without risk of failure. The system of determining mental capacity by means of psychological tests is valid and scientific, but good judgment and some experience must be brought to bear in the actual use and application of the system. No extraordinary skill or training is required, however, beyond that of the alienist who is patient and accurate. When one attempts to use the psychologist's methods he must be patient and accurate.

The alienist who has as a part of his armamentarium a process by which he can mathematically demonstrate the relative standing in efficiency of any subject in a group of similar subjects no longer stands in the false position of arbiter of fate of those he examines. The personal factor in the equation of his findings is small. His arbitrary or personal judgment based on his experience appears as a direct factor in the fate of the prisoner only as he draws the line of demarcation between classes in the group; e. g., between normal and subnormal. The confidence of any tribunal, whether judicial or psychological, in an alienist's opinons must be larger when the broad and elastic findings of the clinical method are checked up and made definite by using the psychological method than would be the case if either excluded the other.

Now a word anent the time required for the examination of a subject: the long time spent by the author in working out the many problems met in adapting well-known mathematical means to ends is no criterion by which to judge of the length of time required for the examination of one subject now that the method is available. Roughly, an hour is time enough for the mere application of the tests and ten minutes' search of the existing reference tables suffices to ascertain the relative standing of the new subject, or seventy minutes in all. Much time was required to construct the mathematician's tables of logarithms, but it takes very little time to make use of them. Of course if one wishes to examine a group of a different mental age than the one found at the reformatory, and must modify existing tests therefor, the work will be somewhat more onerous, for a new group of subjects to serve as a nucleus must be examined and new norms established.

As application is made of the psychological tests to those of a suitable mental age, and their figures are added, the mass of data grows, and the larger it is, the more valuable it becomes; so that if those alienists generally whose work is with defectives decide to use standardized sets of tests, the data collected will be of great and permanent scientific value, not only to those who contribute, but to other students. A statement, however, of the value of standardized procedure for examining defectives would not be new, of course. Standardized groups of tests for various mental ages is the goal toward which all workers in this field are striving, and it is the logical expectation that a sifting and organization of the available scientific material will soon bring systematized and unified groups of tests within the reach of all examiners who care to use them.

Reports of Societies.

CONNECTICUT STATE MEDICAL SOCIETY.

ONE HUNDRED AND TWENTIETH ANNUAL MEETING, NEW HAVEN, MAY 22 AND 23, 1912.

THE NERVOUS MANIFESTATIONS OF PNEUMONIA.

DR. JOHN C. LYNCH, Bridgeport: Nervous manifestations are encountered in almost every case of acute infectious pneumonia. These manifestations may be divided into two types: Those which occur in association with the disease, and terminate with the crisis; and certain manifestations that occur during or after the attack, and do not terminate with the crisis. Of the

former, some may be due to the sudden perverted physiological condition that the organism undergoes as the result of the abrupt onset of the disease; others may be due to the high temperature; while others, and possibly all of them, may be dependent upon the toxins. The toxins are many and various. Some may be developed within the invading organism, while others may be developed from the tissues of the body by the destructive action of the pneumococci upon them. Of the toxins thus produced, some may have an affinity for the heart; others for the liver and kidneys, or the central nervous system. According to the usual order, a certain relationship is observed between them; and under certain conditions, one or the other may predominate and give rise to special pathological effects. The nervous manifestations include chill, depression, pain and delirium. Cerebral pneumonia occurs most frequently in children and young adults, but it may occur in the aged, and in them is always a serious condition. Another nervous symptom is the development of herpes on or about the hips, which is regarded as a favorable sign. Transient palsies have occurred, and are probably toxic. Pneumonia may be followed by an exhaustion psychosis.

DISCUSSION.

DR. HAROLD S. ARNOLD, New Haven: A question which presents itself is this: Are not some of the symptoms which we commonly ascribe to the action of the toxins upon the central nervous system in pneumonia more often than we are in the habit of supposing, particularly in the fatal cases, the results, the actual invasion of the meninges by the pneumococcus and consequent inflammatory reaction? Furthermore, is not pneumococcus meningitis more common than many observers think?

The fact which Dr. Lynch mentions and to which Liebermeister has recently called attention, namely, the frequency with which he has found suppurative inflammation of the meninges at autopsies upon pneumonia patients in whom during life no meningitic symptoms had been observed, is suggestive.

THE RESPONSIBILITY OF THE INSANE.

DR. HENRY S. NOBLE, Middletown: The frequency with which insanity is alleged as a defense for crime in our country renders its medico-legal study a matter of more than passing interest. Underlying the whole matter of irresponsibility for crime by reason of insanity is a misunderstanding between the legal and medical professions. The attitude of those who wish to vindicate the majesty of the law is that no insane person is responsible for his acts. There is an attitude somewhat in advance of that which has for many years been maintained by the courts; it is the more recent charge of an eminent jurist to this effect: "The most reliable and efficient test of responsibility where insanity is pleaded as a defense should be, 'Is the crime charged the product and direct result of the insanity alleged?' That insanity implies certain immunity from punishment, all agree, but every alienist of wide experience recognizes that there are degrees of responsibility associated with insanity, and that the majority of the insane should be held responsible for many of their misdeeds. Every medical officer in an institution for the care of the insane recognizes that many of his patients often commit misdemeanors deliberately, and with malice aforethought. Although knowing right from wrong, with full understanding of the nature, character and even consequences of their misdeeds, yet they continue to transgress. Hence we find the insane subject to mild forms of punishment, according to the nature of their offenses. In order to prove that the insane possess no little control over their conduct, Dr. Mercier mentions the fact that with those patients whom he allowed "pocket-money," the prospect of having this stopped restrained them from practices of mischievousness, destruction and other evil habits. Although the principle is loudly maintained that no insane person is responsible, and should, therefore, never be punished, when we come to actual practice we find that a pretty large percentage of the insane are quite responsible. They act from the same motives and are influenced by the same considerations as those who are supposed to be in full possession of all their faculties. We all agree that some of the insane are wholly irresponsible, and are justly entitled to complete immunity for their misdeeds. On the other hand, it cannot be denied that a very large number of the insane are, to some extent at least, responsible for their misconduct.

We should endeavor to set forth what mental conditions should exonerate the insane offender from some or all punishment. The insane may be divided into two classes, — those dominated by desire, and those dominated by diseased judgment. The former constitute the vicious insane; the latter, the conscientious. One is responsible; the other, irresponsible.

We shall have to consider each case by itself and endeavor to decide whether the act complained of is the direct effect and consequence of disease or not. It will be a step in advance when graduated responsibility of the insane is recognized in law as it is in medicine, and penalties regulated in accordance with the principle.

DISCUSSION.

DR. WHITEFIELD N. THOMPSON, Hartford: Obedience to tradition, conservatism and a more or less general belief that a large percentage of offenders against the law are in some way abnormal stand as stumbling blocks in the way of due consideration of the varying degrees of responsibility of those suffering from some mental disorder. There seems to be no valid argument against partial responsibility in certain classes of the insane, and in others mentally defective; the rub comes in obtaining recognition of the fact when victims of such states come into conflict with the law.

Gradual mental deterioration is marked by partial, though not full, loss of responsibility.

It is, as Dr. Noble has pointed out, important to take into account an individual's normal tendency; and whether he has yielded to the dictates of desire, or has acted in good faith, in obedience to the directions of a diseased judgment.

DR. JAMES M. KENISTON, Middletown: It seems to me that if doctors and lawyers could get together, they might solve this whole problem in a common-sense, practical way. Then the lawyer would learn that an insane man is a sick man, just as much as if he had diphtheria or cancer; and, being a sick man, he should be treated as such. Further, in criminal or civil suits, the doctor, the expert, should be allowed to examine the person undergoing trial, and then tell the jury exactly what he has found. We are trying to abolish the use of the word "insanity," just as we have the word "consumption." We now recognize different forms of mental disease, but we also know that in every one of these forms there is some bodily affection, both mind and body suffering together, though in different degrees. The experienced doctor must, by virtue of his skill and experience, be the best man to decide this question, laws and customs and precedents notwithstanding.

DR. NOBLE: I simply want to emphasize the point that insane people are not all necessarily irresponsible for the acts that they commit.

EXPERIMENTAL NEPHRITIS AND ITS CLINICAL SIGNIFICANCE.

Dr. Max R. Smirnow, New Haven: Nephritis may be produced by a variety of substances that reach the kidneys for excretion. Substances like mercury, lead, bacteria, other heavy metals or their toxins, drugs, etc., have been used experimentally with success with parenchymatous nephritis, glomerulo-nephritis or interstitial nephritis.

From clinical observations, many writers suggest intestinal absorption as a possible etiological factor for nephritis. It has also been suggested that disturbed metabolism, particularly that derived from disturbances of liver function, may induce nephritis. Our experiments show that rabbit feces extract and rabbit bile produce in the rabbit both a parenchymatous and an intestinal nephritis, depending on the length of time the experiments are carried on.

In these experiments, a secondary anemia was frequently accompanying clinical manifestation.

Absolute proof of similar action of bile and other substances absorbed from the intestine in man is still wanting, but its inference from our experiments may be justifiable.

DISCUSSION.

Dr. George Blumer, New Haven: So far as the clinical manifestations of auto-intoxication are concerned, I wish to utter a protest. I have not been able to satisfy myself that there are any clinical manifestations of so-called auto-intoxication. Of course, the great weakness of experiments of this kind has been pointed out by Dr. Smirnow himself, when he attempted to produce kidney lesions by the interperitoneal injection into rabbits of an extract of rabbit feces. Even if you produce a lesion, you do not know what it is caused by; that is, what particular thing in the mixture produced it. In order to reach a conclusion, it would be necessary to test each different constituent in the bile. Even though we prove that there are certain substances in the intestinal canal that, under either normal or pathological conditions, are capable of setting up nephritis experimentally, we have not proved that these conditions are applicable to the human being. Apparently the intestinal epithelium has a certain amount of selective action on the substances which it takes up; if it is a substance that passes through them without being absorbed, it is unlikely to cause nephritis.

Dr. Charles J. Bartlett, of New Haven: Aside from those rather rare cases in which the chronic condition has followed acute nephritis, the arteriosclerotic type of the disease and the occasional case in which a definite chronic poisoning, like lead, is the cause, we have to admit that the etiology of chronic nephritis is doubtful.

By adopting the method which has been outlined by Dr. Smirnow, we aimed to get a bacteria-free extract of the feces. The injection of this extract into the peritoneal cavity of the experiment animals may not have given a condition entirely similar to that obtained in constipation, but it has the advantage of definitely introducing into the animal, in solution, a quantity of material that has been obtained from another animal of the same species. The results have been encouraging. A considerable percentage of the animals have shown definite interstitial lesions of the kidneys. The most surprising result has been the obtaining of equally marked lesions when bile alone was injected, although here the number of animals tested is small. So far, we have worked chiefly with one kind of animal, rabbits; and their kidneys seem to be very susceptible to the injurious action of various substances. Also, I appreciate that the results of such animal experiments cannot be directly transferred to a discussion of the disease as it occurs in man.

Dr. Smirnow: We have worked on some bile, but not on the bile of the rabbit, and find that it produces an acute change in the kidneys. Human bile and bile taken from cattle will not give rise to interstitial nephritis, but to an acute process. As to the absorbability of these substances, there are some experiments that prove that, as Dr. Bartlett has said, they may be absorbed.

THE PRESENT STATUS OF THE VACCINE TREATMENT OF DISEASE OF THE EAR, NOSE AND THROAT.

Dr. Frederick N. Sperry, New Haven: Vaccines are available for the treatment of infections where antibodies are produced in insufficient quantities, and most available where comparatively small amounts of toxin are being absorbed and consequently the formation of antibodies is likewise small. The introduction of vaccine stimulates the general production of antibodies, and the production is usually in excess of the amount necessary to neutralize the vaccine. With excess of antibodies we have increase of the bactericidal powers of the blood.

In diseases of the ear, nose and throat we have conditions favorable for vaccine treatment, that is, a localized infection, often in an area of lowered resistance. Here we have a minimum of toxin absorption and a consequent insufficiency of antibodies. It is in such conditions that we should be able to ask the whole body to help in manufacturing a resistance.

The reports on the use of vaccines are unreasonably variable, more than can be accounted for by skepticism and enthusiasm. It seems, after a review of the literature, not unfair to assume that some fault in technic is to blame for the lack of good results. The principal difference of method of those who have failed to obtain good results, from those who report successes, are the longer intervals between treatments, a week or more as compared with three days, and the using of stock vaccines as compared with autogenous.

Not including tuberculosis, my own cases number seventeen and include a variety of conditions. Almost all of my cases have showed marked improvement, but I have had a few failures.

Infections of the accessory sinuses of the nose have yielded but little to vaccine treatment unless the cavities have been drained by the appropriate surgical treatment.

Tuberculosis merits consideration. In tuberculin we have a potent agent for the treatment of tuberculosis, which is so localized that the absorption of toxin is insufficient to arouse the whole system to combat the disease. This stirring of the system to combat can be performed by tuberculin judiciously administered.

In concluding, I should like to point out that in vaccine we have an efficient helper, and while at times the helper may do the work of the chief, yet the best results are accomplished when the regular lines of medical and surgical treatment are followed and the vaccine is used as an adjunct.

DISCUSSION.

Dr. E. Terry Smith, Hartford: During the past few years we have used vaccines in the treatment of a number of conditions, and have considered them of value in cases in which we have inflammatory conditions, due to the presence of the gonococcus in the system; in furunculosis, in some cases of actual otitis media, and in exanthematous diseases; and all are pretty nearly agreed that in tuberculosis, if tuberculin

is given by a competent man, a man who appreciates the danger of not giving great care, and who gives it only in those cases that are carefully selected, we very often get, I think, what are apparently very brilliant results.

DR. GEORGE BLUMER, New Haven: When you consider that there are ten or twelve different strains of gonococci in these infections, it is readily appreciated that it is necessary to use autogenous vaccines in these infections. Very often a localized focus of inflammation is walled off from the general circulation; and that is why you have to use the vaccines in the first place, because the organisms do not go into the general circulation. It is not much good to give vaccines unless you do something locally to change the circulatory conditions.

DR SPERRY: It is more particularly in the case of staphylococcus infection that the stock vaccines are of value. Of course, in case of prophylaxis against scarlet fever, there is no possibility of getting an autogenous vaccine. Therefore, you must take a mixed culture of polyvalent vaccine, made of as many strains as you can find.

THE OPEN-AIR SCHOOLS.

DR. HENRY M. STEELE, New Haven: The combination of medical betterment and mental benefit obtained from open-air schools have attracted the attention of educators not only in Germany, but in England and the United States as well. In our own state, such schools were established in Hartford and South Manchester. The Civic Federation of New Haven appointed me to try to establish an open-air school. Individual subscriptions were solicited and met with encouraging response. With this support, it was possible to buy the tents, flooring, sitting-out bags, sleeping chairs and blankets. The Board of Education, besides giving a teacher, furnished the regular school equipment; and the management of the New Haven Orphan Asylum gave the morning and afternoon luncheon of crackers and milk. For clothing they wore the same as the other children of the orphan asylum while indoors. In the tent they were additionally protected from the cold by means of overcoats, sweaters, toques, mittens, heavy felt boots and blankets. They sat in felt-lined canvas bags. The children were very much improved in health, though there was no very decided gain in weight, probably because they were not, in the beginning, under-fed children.

It is our hope that this small tent school may emphasize the fact that fresh air does not cause children to take cold, as those who had colds soon lost them, and that we may, therefore, have our regular schoolrooms more freely and constantly ventilated.

DISCUSSION.

DR. HENRY F. STOLL, Hartford: At Hartford we had the first open-air school in Connecticut, and the third in New England; and it is now at the end of its third winter. Our first effort was to get children from tuberculous families. We got quite a number whose parents had died of tuberculosis or had the disease. In addition, we had children who were nervous or had bad headaches. I am particularly interested in the case of chorea that Dr. Steele has spoken of, because we had two cases of this disease. One was moderately severe and the other was very severe, so that the child could hardly walk. I have seen this latter child since she has left the school perfectly cured. I watched her for half an hour and there was no chorea at all, which is remarkable, considering the severity of the case.

The cases of chronic headaches were all cured very promptly. We had no case of open tuberculosis, because we thought it unfair to give such delicate children any chance of infection. We found that an ordinary tent roof was unsatisfactory. The roof should be wooden. The walls should be six feet high and there should also be about two feet of sand under the floor. The building should face so as to bring its longer sides running east and west. This gives a greater exposure to the sun. The children, preferably, should face the north, so the sun will not shine in their faces.

We found that, including the salary of the cook, the food, the gas, the paper-napkins, it cost fifteen cents a day for each child; and before they go to school they have some breakfast, and something more to eat when they go home.

With regard to discipline, we have noticed that a number of children known as bad boys before coming to the school have changed materially since they came.

DR. THOS. G. SLOAN, South Manchester: The school in South Manchester has been running sixteen months, and the result has not been wonderful. There are no tenement houses in South Manchester, and half of the people there have their own gardens, so that the children have plenty of fresh air, and the most of them get enough to eat. As we do not take cases of open tuberculosis, this cuts down the cases that really need open-air schools. It is an entirely different proposition from what you get in a large city. We found an average gain of four pounds a child. Fully as much of the benefit that the children get, I think, is from what they are taught, as from the fresh air and food. One thing that has not been touched upon is that we teach the children to brush their teeth. That is one thing that they have to do every day in this open-air school. Comparing my figures with Dr. Steele's, I think that we have not done so badly as I had first thought.

DR. NATHANIEL E. WORDIN, Bridgeport: I should like to ask Dr. Stoll about his school at Hartford; how it is run and who pays for it.

DR. STOLL: The city provided the school building and school equipment, the teacher and the room in which the children take their bath. The Society for the Prevention of Tuberculosis furnishes the food and the equipment other then the regular school furnishings.

DR. STEELE: All children like tents, and there is a little psychical element in having the whole building look like a tent. A wooden roof, however, is better in winter, and gets rid of the snow, which causes the flies to sag badly, as they are over thirty feet long.

TREATMENT OF TUMORS OF THE MAMMARY GLAND.

DR. PHILIP W. BILL, Bridgeport: Every growth of the breast in a woman over forty should be operated on, for even if harmless, no one can say how long it will remain so. It is not, however, always necessary to do the radical operation, unless there is a doubt as to whether it is malignant. It is better to operate on ten breasts that might never become any worse than to allow one patient to die by the tumor's becoming malignant. In benign tumor the operation may be done in such a way that the disfigurement is very slight. It is fair to hope that with the era of early operations there may be a diminution in the amount of tissue that it is necessary to remove.

DISCUSSION.

DR. GEORGE N. BELL, Hartford: I do not believe that there is a single class of cases that carried so heavy a weight of responsibility in their final decision as these same neoplasms of the breast; and just why they are put off with recommendations to wait, by men who would be the first to advocate operation in abdominal or other pathological conditions, it is hard to under-

stand. They know, if they care to look it up, that about one woman in every eight over thirty-five years of age dies of cancer, and that of all women who die of cancer, 16% have cancer of the breast, and that more than 50% of these could probably be successfully operated upon if seen early enough.

DR. D. CHESTER BROWN, Danbury: Eight out of every ten cases of tumor of the breast are definitely and positively malignant; and of the two remaining cases of the ten which may be benign, one — or a little more than one — will become malignant. Now all that a man in general practice has to do is to sit tight and call every case that comes to him malignant tumor of the breast, and he will be right nine times out of ten, which is a pretty good proportion for diagnosis.

It seems to me that it is a criminal act to cut into a benign growth, or what may appear to be a benign growth, to see whether it is benign. You never should see a cut surface of it if you are going to have good results; therefore, it seems to me that you are justified in removing the entire gland and the growth — breast, muscles and fascia *en masse*.

DR. DANIEL F. SULLIVAN, Hartford: So far as I know, the state of Connecticut has never made any appropriation for the investigation of this disease and its cure, whereas it has appropriated an amount going on to almost a million for the investigation of tuberculosis. It is my opinion that the fearfully extensive operation that most of us have been employing has been gradually receded from.

For the last fifteen years I have seen few returns in the cases in which I have done radical operations, but the question is, has the radical operation been too much of an extensive disfigurement on the part of the patient.

DR. BILL: Some day, if we can get the diagnosis, or, at least, get the chance to remove breasts, before malignancy is established and its diagnosis made, the chance of doing away with the mutilating operation will probably present itself.

SOME REMINDERS ON FRACTURES.

DR. AUGUSTIN A. CRANE, Waterbury: The x-ray is recommended for the benefit of the patient and the protection of the doctor. If only one exposure is made, it should be after reduction. Radiographs of bad results obtained by good men after their best effort before, or without, the use of the x-ray, are shown. It requires more skill to interpret an x-ray plate than to make it. Fractures of the carpus, metacarpus, tarsus, metatarsus and articular surfaces of the long bones were not understood before the days of the x-ray, and cannot be accurately diagnosed now without that agency. In especial fractures, especial apparatus is necessary, but for general purposes plaster of Paris is the fixation material of the greatest value, and it is a pity that it is not more and better used. Fracture-sprains, as demonstrated by Rose, "show the rationale of our success in empirically immobilizing sprains." That Colles' fracture sometimes gives bad results, even after perfect reduction, may be due to the absorption of my impacted portions. In low fractures of the leg, where there is difficulty in replacing and retaining the fragments, cut the tendo Achilles. The composite verdict of American surgeons regarding Lane's plates is that they should be employed in cases in which experience teaches that the result without them is apt to be poor. This includes open fractures and non-union. One should use a powerful bone-clamp to replace the fragments, retain the fragments and hold the plate, and should follow Lane's personal technic in every detail, including his elaborate armamentarium and extreme asepsis. To the lack of observance of the last requirement is ascribed the large number of poor results reported by American surgeons.

DISCUSSION.

DR. ANSEL G. COOK, Hartford: I think that there is a tendency to rely too much on the x-ray, to the exclusion of other means of diagnosis. It should not be accepted as the sole means of diagnosis.

DR. WILLIAM H. CARMALT, New Haven: I know of no one thing more impressed upon me than the necessity of frequent and constant observations of the splints in fractures. They get misplaced without your knowing it or the patient's knowing it. The x-ray is not a picture of the fracture. It is simply a picture of the shadow. You must use your own judgment in the interpretation of it.

It is all very well to say, "Put the fracture in place and keep it there"; but it is a pretty big job to do this, if you do not watch it all the time. Plaster of Paris is the most reliable thing that we have. I must emphasize what Dr. Crane said about the plaster including the whole limb. Bone-sprains are, nine times out of ten, fractures, and what we suppose to be a Colles' fracture of the radius is almost always a complicated fracture of something else besides. A sprain that is put up and treated as a fracture gets well a great deal better than one put up and treated as a sprain. If you cannot get the distal portion down, put the proximal portion up. Place the parts in apposition. If you cannot get the fragment back otherwise, even if you have to put your fingers into the wound, you must do so. I have had no experience with Lane's plates. They have come into use since I left the hospital, and I do not know much about them, but I understand his theory pretty well. If you follow an operation, do exactly as the man gave it, or you are not treating him fairly.

DR. PATRICK J. CASSIDY, Norwich: I wish to speak of Dr. Crane's paper as an educational paper. It is instructive, because it advocates, first of all, the use of the x-ray for diagnosis. It is also instructive because it impresses the fact of the necessity of fixation, and also the difficulty of fixation. I speak of these two points, because in our part of the state we suffer from the presence of a "natural bone-setter." I have seen five or six cases of impaired vitality, impaired life from visits to the natural bone-setter. I have seen cases of death, cases of compound fracture, because the opinion of the regular practitioner was not considered as being better than that of the natural bone-setter. I wish this paper could come into the hands of the laity in our part of the country.

DR. ERNEST H. ARNOLD, New Haven: As to the use of the x-ray, I should say that one should not use it at first, but should try to make the diagnosis without its use; after which the x-ray should be used to verify. It is my rule not to undertake to treat any case of fracture without an x-ray taken at some time or other. The x-ray does away with the conception of green-stick fractures. I have never seen a case; almost all are complete fractures. Plaster of Paris is one of the best means of fixation. I would call attention to the fact that all splints should go over two joints.

DR. D. CHESTER BROWN, Danbury: Rosse states to-day that he believes that every dislocation is a fracture-sprain. If that is true, is it not good treatment to bring back your fragment and fix it, as you do in Lane's plates, relieving the joint of the tension and of the material accumulated there by the amount of hemorrhage that occurs, giving a good drainage, and then fixing your fragment of bone to the larger portion? I had the opportunity of seeing Rosse's original plates. They are not very big fractures; but it is so easy, with

a big bone, to bring your fragment into apposition and fix it with some metallic pin, and you do not get a relaxed ligament and a loose joint afterward.

DR. D. F. SULLIVAN, Hartford: It is unwise to leave the wound without careful cleansing. We have a great many cases of tetanus following compound fractures. Dr. Murphy cautions you not to pick out the bones unless the bone is separated from the periosteum, and not to put your fingers on the injury. The trauma produces cells which act as phagocytes and do good, and anything in the way of interference by cleansing defeats the very ends that nature is trying to accomplish.

DR. CRANE: I sympathize with Dr. Cassidy's difficulties in referring fractures to a specialist, so-called. If I were practicing in Norwich, I should put fractures up in reinforced concrete, instead of plaster of Paris, on the first visit. None of the fractures that I saw would give enough body to get hold of with a pin or dowel or clasp. Those that I have seen, unless the joint was much distended with blood, could be retained by pressure and immobilization. One thing that I omitted was a caution from Dr. Beck, of Chicago, on the subject of the treatment of compound fractures. "The surgical busy-body, with soap and drug, has killed more fracture patients than all the dirt carried into them at the time of the injury."

ADVENTITIOUS BANDS ABOUT THE CECUM.

DR. JOSEPH M. FLINT, New Haven: The veils, or membranes, known as membranous pericolitis, occurring about the cecum, have a more or less regular distribution, and may be roughly divided into three groups: The first extends from the parietal peritoneum near the hepatic flexure, and on to the lateral and ventral aspect of the ascending colon, leaving the *caput cæci* free. Occasionally this may cover the cecum and the appendix, in whole or in part, as well. The second group includes more limited veils extending from a corresponding part of the peritoneum over the *caput cæci*, and involving the appendix. In these cases, the ascending colon is free. The third includes veils with a similar origin, which may pass over the colon, and become continuous with the omentum along the mesial aspect of the large bowel. The first two types of these veils, as is shown by the study of a series of human embryos, result from an extension of the usual fusion that occurs between the rotated intestine and the parietal peritoneum. The fine, delicate attachments sometimes extend over on to the ventral aspect of the cecum and ascending colon, and are drawn out into membranes during the subsequent descent. The omentum occasionally fuses with the colon more to the right, sometimes extending to the abdominal parietes. During descent, the omentum is dragged down, yielding veils that are continuous with the omentum. These veils occur frequently. Usually they cause no symptoms. When badly placed, they may cause obstruction and pain, and involve or kink the appendix. Lane's band is due to an extension of the process of fusion to the terminal portion of the ileum. It is found in embryos. Descent, when this attachment is present, will often shorten the posterior leaf of the mesentery and kink the gut. An embryonic band, that occasionally gives symptoms, occurs between the gall bladder and transverse colon and omentum. A pathological significance should be ascribed to normal but variable structures with great hesitation.

DISCUSSION.

DR. WILLIAM F. VERDI, New Haven: It is ten or twelve years ago that I first observed these pericolic bands, while operating for appendicitis. I have found four types of bands, instead of three. It seems to me that it is not, even with Dr. Flint's careful investigation, definitely decided that this is an embryological structure. I think that while these bands do resemble normal structures, they are of so long standing that they appear to be congenital. They do not cause so much trouble as one would think. Even after they are divided, however, the symptoms are not relieved in every case. The type of Lane's kink I consider of great importance; because two or three years ago I operated on a patient who had an obstruction — a *bona fide* intestinal obstruction — due to a Lane's kink. I have also operated on others where the obstruction produced no symptoms, the condition being found in the course of the operations for other causes.

DR. EVERETT J. MCKNIGHT, Hartford: For some time I have felt that many of these bands, met with at the time of operation, were congenital. My attention was first called to the fact by a case I had seven or eight years ago, in a woman who presented symptoms of gradually increasing obstruction. We were satisfied that it was malignant disease of the cecum. Incision into the right rectus revealed no tumor, but a marked membrane attached over the cecum and ascending colon. I proceeded to separate the veil, which was very vascular, and much thicker than any I had seen before or since. In examining the band carefully I could find no evidence of previous inflammation of the appendix. I thought that there must be trouble elsewhere, and I found a small, annular carcinoma of the sigmoid, which I operated upon. This woman was subjected to an unnecessarily long operation. What I did to the veil did no good, although it did no harm. That brings up to the practical consideration of what we shall do when we meet with these adhesions. Every man must decide for himself whether they are causing trouble, and this often is difficult. If they are, section should be made.

DR. FLINT: We have come to associate either a Lane's band or appendicitis with these symptoms. The question of obstruction with Lane's bands is interesting. Two of our patients had a definite history of obstruction when they came in; and, after waiting twenty-four hours for the bowels to move, one was operated on for obstruction. There was a very marked kink, and a Lane's band was found, with a prolapsed colon.

THE SURGICAL TREATMENT OF GOITRE.

DR. O. C. SMITH, Hartford: The term "goitre" is broad and far from distinctive, and indicates a morbid enlargement of the thyroid gland of unknown cause with variable anatomical features, occurring as endemic, epidemic or sporadic disease. Colloid, cystic and nodular goitre are best treated by operation. In these cases the risk is exceedingly slight and the relief is marked and generally permanent. The engorged and swollen thyroid of puberty and pregnancy, or that occurring in young life as the result of mental strain or sexual excitement, calls for rest, hygiene and conservation of the nervous system. If we accept the parallel of Wilson, which is accepted by those who have had the largest experience, the rational deduction is that a portion, be it larger or smaller, of the hypertrophied, hyperfunctioning gland unrelieved by other measures should be removed, either by one method or another. In serious cases this is more safely performed in two stages, the first of which has for its object the limiting of circulation by the ligation of the vessels or upper poles of the gland. Operations downward, where secondary changes occur which cannot be remedied, if operation is to be performed, should not be postponed until all hope of repair of damaged tissue is past. Occasional

untoward results reported by those of large experience in the use of sera should deter us from promiscuous, haphazard methods in its administration. With improved technic and methods, and with discrimination in selection of cases, the hazard of operation for simple goitre is negligible, while in hyperthyroidism the result will be as satisfactory and the mortality lower than in most other acute lesions demanding surgery which has as its goal the saving of life and minimizing of morbidity.

DISCUSSION.

Dr. Harry M. Lee, New London: In approaching this subject one must always have in mind the varying and conflicting syndromes that will be presented, from the picture of a large cystic goitre without symptoms to those hyperthyroid cases that seem as if they must soon run to destruction. Dr. Smith mentioned the absolute impossibility of a classification's being found that will satisfy both the clinician and the surgeon. A pathological classification will not account for the symptoms expressed by the patient. These cases of extreme hyperthyroidism are very apt to show very little change, at least a pathological one, in their thyroid glands. It seems to me that the best classification we have had in all these years is the one made by Dr. Bacon. I do not consider the type of hyperthyroidism, exophthalmic goitre, as entirely a surgical problem. In approaching these cases we should first subject them to a critical diagnosis of what type they are suffering from, and they should then be treated by the best methods of medical treatment before intervening surgically.

Dr. Leonard W. Bacon, Jr., New Haven: Speaking of some of the difficulties of the diagnosis of the disease of the thyroid gland, aside from plain goitre, Dr. Smith mentions an acute strumitis. This is not a common difficulty, but I saw a case some years ago with distinct local symptoms of inflammation and the classical signs of inflammation in the thyroid region, but, singularly enough, no general symptoms of disturbance of thyroid function at all. Dr. Smith does not speak definitely of a type of goitre that is difficult to handle, a goitre that extends beneath the sternum, and possibly has its most considerable development there. The difficulty in these cases is not, in my experience, very grave. In the so-called "plunging goitre," the fact that it rises and falls with respiration, indicates that its attachments are very loose. Sometimes I have removed one from behind the sternum that promised a mass the size of the fist. My predecessor has very properly emphasized the point that Dr. Smith made with regard to the discrepancy between the clinical and histological findings. In a case that I operated on, flakes of true bone were found disseminated throughout the gland. One single note as to diagnosis and treatment in the presence of enlarged and soft goitre: the simple way to palpate is to thrust the whole goitre to the left side of the neck, and then you can palpate lobe on the left side; and then throw it to the right side of the neck, and you can palpate the right side distinctly and get evidence of enlargement that you cannot get when the goitre is in the median line of the neck. As to the prognosis under other than surgical treatment, I think that the writer does not do entire justice to the benefits that may be received from medicinal or quasi-medicinal treatment.

Dr. Daniel F. Sullivan, Hartford: I disagree with Dr. Smith in saying that the diagnosis of exophthalmic goitre is not an easy matter. The treatment does not entirely belong to the surgeon. Rest in the treatment of exophthalmic goitre is very important. A proper environment will often do more for a case than surgery. If the patient demands operation, or is not in a position to submit to a long course of treatment, then the patient should be operated; which operation is so dangerous and sometimes unhappy for the good reputation of the surgeon.

Dr. Rush: The condition found histologically after operation is not necessarily always that which might have been found, had the gland been removed earlier.

Dr. William W. Brackett, New Britain: Every time we see a goitre or any enlargement of the thyroid gland, we say that every other symptom is the result of the thyroid trouble. To my mind, that thyroid is very often doing the very best it can. What you have got to do is to get behind the thyroid and see what is producing the trouble. Dr. Crile said that the way in which the cases are handled in the year or two after operation makes more difference than does the particular way in which the operation is done. If you go through a school you will find a certain percentage of children with enlarged thyroids; and most of these are of just the type that develop later into larger cases of thyroid trouble; and I think that you can do a good deal by telling the parents that the children have thyroids that are not strong, and that they must be kept away from too much excitement.

Dr. Smith: Hyperthyroidism is a medical disease, and should be treated medically. When medical treatment fails, however, surgical treatment is essential. I have said in the paper that rest, hygiene and the use of sera are of importance in the treatment of this disease. In those cases which Dr. Bell and I operated upon, we found that twelve required preliminary ligation.

THE PRESIDENT'S ADDRESS. — THE MEDICAL SCHOOL.

Dr. John G. Stanton, New London: Are our medical schools of to-day fully up to the requirements necessary to a complete and thorough foundation and superstructure for instruction? Are they teaching thoroughly and satisfactorily along lines that shall fit their students at graduation to take up the responsibilities of life and death that come to him who assumes to practice the profession of medicine? There are first-class, fully equipped medical schools at the present day where the medical student must fulfill the requirements of a full, thorough and well-grounded medical education before he can gain his diploma; but what is true of a comparatively few medical colleges is far from being true of a host of others. The fault does not lie entirely with the too numerous low-grade medical schools. The public, the citizens of this country, are to blame fully as much as the proprietors of the medical grist-mills. The question of medical education confronts a condition, not a theory. Remedial legislation is proceeding with halting steps, and goes only just so far as is supported by an intelligent public opinion. Consequently the task before us who are competent to mold that opinion is by every legitimate means to educate the public and satisfy them that we are actuated by an honest desire in demanding a higher standard of medical education; and that the ultimate result sought means a conservation of its own best interests, in the production of a class of physicians who shall be thoroughly educated in medicine and competent to assume the responsibilities of a profession that enters so deeply into the family relation.

RECENT DEVELOPMENTS IN THE DIAGNOSIS AND TREATMENT OF TUBERCULOSIS.

Dr. William B. Bartlett, Hartford: The most important developments in the realm of tuberculosis in past few years, I believe to be as follows: (1) In-

creased accommodations for the tuberculosis invalids and the growth of the sanatorium idea; (2) the evidence that bovine tubercle bacilli cause many forms of surgical tuberculosis in children, that it is less frequent in adults and that it may even cause pulmonary infection; (3) the development of the x-ray in diagnosis, and the relegation of the tuberculin test to a place of secondary diagnostic importance; (4) the development of long surgery, especially the demonstration of the therapeutic value of artificial pneumothorax; (5) the evidence that the average patient will gain satisfactorily and do far better when fed moderately, and sanely, than when stuffed until his stomach rebels.

DISCUSSION.

DR. FRANK B. STANDISH, New Haven: A great advance has been made, especially in the x-ray work. Recent work at the Phipps Institute has demonstrated that these small lesions may be detected by x-ray, as well as by clinical methods. In the line of treatment, one of the most interesting things at present is the method of compressing the lung by means of an artificial pneumothorax. The workers in this line have nearly all of them reported favorably of this procedure. At the present time, the operation of the creation of an artificial pneumothorax has not been done in early cases. If it is to be restricted to the advanced cases, the value of the procedure must necessarily be limited. We have treated too lightly the danger of contagion. We have been saying that the consumptive who takes care of his sputum is not a menace to the safety of the community; but care of the sputum in a sanitarium is quite a different thing from the care of the sputum obtained in the tenement-house district.

DR. LEONARD J. LOEWE, Falls Village: One cannot help but be impressed when one looks at the amount of work done in tuberculosis, by the evident uncertainty that is manifested in most of our tests. The different diagnostic signs always show a lack of something definite. The only certain method is a physical examination, thoroughly made by a competent man. Generally we hear of tuberculosis as being first manifested after an illness of nervous breakdown. This means that the disease has been latent in that person's body. The fact is that we have no specific as yet; and the fact that tuberculin has done so much in cases in which tuberculosis has been the disease that was causing the trouble leads us to still think that the most definite advance will be in the line of tuberculin. I would say that the sanitarium idea is the best method. In the sanitarium treatment the idea of rest has proved the most beneficial; but in cases later on, it will always be well to try to have also some little work.

DR. STEPHEN J. MAHER, New Haven: It seems to me that in pulmonary tuberculosis tuberculin is secondarily important to a proper physical and microscopic examination; but that in other forms of tuberculosis, the work of recent years would show that tuberculin is fast becoming of primary diagnostic importance. Perhaps the only criticism that I could make of the paper would be that in it, its title being "Recent Developments in the Diagnosis and Treatment of Tuberculosis," the whole subject of tuberculin has not been given the importance that it deserves according to the work being done everywhere. Personally I am not enthusiastic about its use in pulmonary tuberculosis. Nevertheless, most of the work done since the Congress of American Physicians and Surgeons at Washington in 1910, that has been worth while, has had to do, in one way or another, with tuberculin. One new idea, perhaps, is in the use of gradual work as a therapeutic agent; and that really comes practically to a question of tuberculin. That is, the patient simply creates more tuberculin within himself, and gets the result in increased ability for work.

DR. DAVID RUSSELL LYMAN, Yellow Farm Sanatorium: We have got to do more than we have been doing in regard to the eradication of bovine tuberculosis if we wish to stamp out human tuberculosis. We have tubercle bacilli served up at the tables throughout the commonwealth, or in nurseries to the children, every day. We shall not make a big stride towards improvement in the state until we prevent the importation into Connecticut of tuberculous milk cows.

DR. BARTLETT: I said that the tuberculin test was relegated to a place of secondary importance, not on account of its therapeutic value, but on account of its diagnostic value.

THE DIAGNOSIS AND COMPLICATIONS OF ATYPICAL PNEUMONIA.

DR. KATE C. MEAD, Middletown: During the winter months, in Connecticut, pneumonia leads all diseases as a cause of death. Atypical pneumonia is difficult to diagnose; and its presence must often be surmised without any positive signs, especially in children or old people. Among the complications of pneumonia, nephritis is apt to be fatal. I may mention two cases; one, in a child who recovered; the other, in an adult who died. Pregnancy is one of the rarer complications of pneumonia, causing a mortality of 70%. The case of a 4-para in the seventh month of pregnancy is reported, who died of heart failure on the third day of the disease, without any sign of abortion. This patient's sister and two children had pneumonia with jaundice the following year, this being another rare complication, caused, perhaps, by the action of the pneumococcus on the red blood cells. This same action may be the cause of embolism and thrombi, four cases of which I have seen, two in women nearly ninety years old, one of whom died; one a patient one hundred years old who died of cardiac embolism; and one in a man of sixty, who had phlebitis and recovered. Pneumonia is sometimes mistaken for appendicitis, especially in children; and there is a similarity in the pain and its location during the first few days of each disease. The diagnosis is, however, aided by studying the relation between the temperature, pulse, respiration and the blood pressure, and by finding the pneumococcus in the blood.

DISCUSSION.

DR. FRITZ C. HYDE, Greenwich: I deplore the custom of some physicians in making a diagnosis of pneumonia in cases in which no physical signs of that disease can be found. In such cases, the leucocyte count often gives us a valuable hint. I must differ with the statement that no case has recovered in which there was irregular heart-action before the crisis.

DR. CHAS. J. FOOTE, New Haven: The title of Dr. Mead's paper is somewhat misleading because it really deals with pneumococcic infection, which is quite distinct from pneumonia. Pulmonary pneumonia is simply one manifestation of pneumococcus infection. If we confine ourselves to the pneumonia caused by the pneumococcus, the disease is fairly typical; in reality, the atypical kind is caused by some other organism. The onset is usually quite typical, but it may not be, because disease may come on with another infection. There may be atypical onset of pneumonia when there is some primary pneumococcus infection in some other part of the body, and the pneumonia is a secondary infection from it. As to the course of the disease, if we have a double infection we have an atypical run of the pneumonia; but if we have simply infection with the pneumococcus, the course is fairly typical.

DR. GEORGE BLUMER, New Haven: I have seen four different kinds of what I should call atypical pneumonia. I mean pneumonia that simulates other diseases. In the first place, there is the form simulating meningitis. The second is the form that simulates appendicitis. Appendiceal pneumonia is not always associated with lower-lobe pneumonia. The third type is characterized by immense, board-like, abdominal distention. Another type is that of lobar pneumonia, occurring in infants or young children and associated with earache. In acute cases of this form, the diagnosis has usually been otitis media. That is a form that is not generally mentioned in literature of the subject, yet I think that these cases, while not so common as the meningeal and the appendiceal forms, are not so very uncommon.

THE STATE BOARD OF HEALTH.

DR. EDWARD K. ROOT, Hartford: Briefly outlined, the State Board of Health was created to carry on two functions. First, to supervise the vital statistics of the state. The second part of the duties of the State Board of Health is far more elastic, and too broad to go into detail; suffice to say that the board takes cognizance of the interests of health and life among the people of this state; and causes inspections of public hospitals, schools, etc. The board has practically no mandatory powers over any citizen over his person or his property unless he is suffering from cholera or yellow fever, which is epidemic. The board is the central bureau for receiving the reports of the county and town health officers, but it has no powers of quarantine or regulation whatsoever. From a sanitary point of view the state of Connecticut is a confederation of independent towns, each sufficient unto itself and regulating its own sanitary affairs; the only authority the state has is that of approval, of systematizing the local regulations before they can be enforced. Is that sufficient for a modern state that is ambitious to progress on modern lines of sanitary science? The State Board of Health should have power to issue rules in matters concerning the preservation of public health which should be mandatory on the towns, and all towns alike, precisely as the town health officers now have powers to make rules within the jurisdiction of their own town. The board should also have the general oversight and authority of public water supplies, public systems of sewage and the pollution of streams, rivers and harbors throughout the state. Matters of public sanitation and of public health which concern a citizen alone should, as at present, be left with the town health officer. But matters involving the construction of large public works, the collection and distribution of public water supplies, questions concerning the pollution of streams and harbors, can only effectively be made by the state, and the board is the logical and proper authority to have charge of these matters. The physicians of the state are necessarily the instructors of the people in matters of hygiene. If the members of this society can co-operate and urge upon our legislators the desirability and necessity of concerted action on the questions above outlined, legislative sanction will not be far behind.

DISCUSSION.

DR. CHAS. P. BOTSFORD, Hartford: Most of us know in a general way that the Boards of Health of other states have very large powers; and when we think of the amount of work that our Board of Health has done in the past, we realize how well known the members of it have been and how tactful has been their executive work. I think that the time has passed when the towns of Connecticut can settle their sanitary affairs for themselves, without regard to their neighbors. If the state is to keep up with the progress of sanitary advancement, we must have some power to undertake and carry through large sanitary improvements that cover several towns.

DR. H. D. PEASE, New York: We have passed through very much the same stages in the state of New York as you are now passing through in Connecticut. Many special efforts were made, some of which were successful, while I was a member of the board, to obtain the powers outlined in this paper as desirable for your State Board. There is no power given to the federal government by our constitution that permits it, directly or indirectly, to step in and have anything to do with health matters in the several states. The powers that have been so carefully and discreetly outlined by Dr. Root should be given to the State Board.

DR. WILLIAM H. DONALDSON, Fairfield: I think that it is a disgrace to the medical profession that we should go on under the present administration of sanitary matters. The medical profession of Connecticut has been for years under the thumb of the legal profession; and anything that we seek to do for advancement or improvement, we can do only by the consent of the legal profession. It is time for our profession of this state to take a decided stand and do something. I hope that the members of the society will use their influence to insure the passage of the Owen Bill. Once it is carried through, we shall have the national power, which can then direct us in the constitution of our State Boards.

The following officers were elected: President, Dr. E. T. Bradstreet, of Meriden; Vice-Presidents, Drs. Frederick Gilnack, of Rockville, and A. E. Barber, of Bethel; Secretary, Dr. Walder Tileston, of New Haven; Treasurer, Dr. Joseph H. Townsend, of New Haven.

The next meeting will be at Hartford, the latter part of May, 1913.

Book Reviews.

Tumors of the Jaws. By CHARLES LOCKE SCUDDER, M.D. With 353 illustrations, six in colors. Philadelphia and London: W. B. Saunders Company. 1912.

The appearance of Dr. Scudder's monograph is a valuable contribution to the literature of American surgery. In it he treats the subject of tumors of the jaws with thoroughness and conciseness, as it has not before been treated in English. The topics under which he presents his discussion are epulis, sarcoma of the jaws, benign tumors of the jaws, the odontomata, carcinoma of the jaws, the diagnosis and operative treatment of malignant disease of the upper and lower jaws, tumors of the palate, leontiasis ossea, and prosthesis. His consideration is admirably illustrated by case histories and by abundant, well-selected figures. His style is incisive and characteristic, his statements clean-cut, his conclusions definitely drawn and well supported by clinical data. He emphasizes the relative malignancy of tumors of the jaws, the consequent importance of their early, accurate diagnosis,

the futility of partial operation for malignant tumors, the importance of detail in operative technic to secure the best possible results. His work should be of great usefulness to practitioners as well as an original production of high merit.

Surgical Operations. A Hand-Book for Students and Practitioners. By PROF. FRIEDRICK PELS-LEUSDEN. Only authorized English translation. By FAXTON E. GARDNER, M.D. With six hundred and sixty-eight illustrations. New York: Rebman Company. 1912.

This exceedingly well designed book of over seven hundred pages presents the principles and practice of antisepsis and asepsis, the methods of surgical anesthesia, the elements of surgical pathology, and the detailed technic of practically all the operations of surgery. From the author's position at the Royal Charité Hospital in Berlin, the work may be regarded as representing authoritatively the science of modern German surgery. The translation is faithful but often unidiomatic. The illustrations are numerous, clear and satisfactory. Though this work will hardly supplant in this country the recognized American textbooks on operative surgery, it is nevertheless of value and interest to students as a manual of German operative technic and methods.

The Principles of Pathology. By J. GEORGE ADAMI, M.A., M.D., LL.D., F.R.S., and Albert G. Nicholls, M.A., M.D., D.Sc., F.R.S., (Can.). Volume II: Systemic Pathology. Second edition, revised and enlarged, with 301 engravings and 15 plates. Philadelphia and New York: Lea and Febiger, 1911.

The second volume of Adami's pathology, dealing, as it does, with special organs and systems, will be found of great value to the general practitioner and student of internal medicine. To the laboratory worker in pathological histology it will be less useful for the sections on the cellular changes in disease are unsatisfactory. The illustrations of gross specimens are excellent, but the photo-micrographs are poor. In this edition the chapters on disorders of the nervous system, the urinary system and the ductless glands have been re-written and amplified.

A Manual of Surgical Treatment. By Sir W. WATSON CHEYNE, Bart., C.B., D.Sc., LL.D., F.R.C.S., F.R.S., and F. F. BURGHARD, M.S. (Lond.), F.R.C.S. New edition, entirely revised and largely rewritten with the assistance of T. P. LEGG, M.S. (Lond.), F.R.C.S., and ARTHUR EDMUNDS, M.S. (Lond.), F.R.C.S. In five volumes. Vol. I and II. Philadelphia and New York: Lea & Febiger. 1912.

The first edition of this work was extensively reviewed in the issue of the JOURNAL for Sept. 6, 1900 (vol. cxliii, p. 243). In this new edition the original scheme is unchanged, but every part of the book has been revised and much of it rewritten with the aid of the two additional collaborators. The new first volume deals with "the treatment of general surgical diseases, including inflammation, suppuration, ulceration, gangrene, wounds and their complications, infective diseases and tumors, and deformities." The appendix consists of a chapter on the administration of anesthetics, by Dr. J. F. W. Silk; and of one on the examination of the blood in surgical conditions, by Dr. W. D'Este Emery. The second volume deals with "the treatment of the surgical affections of the skin and subcutaneous tissues, the nails, the lymphatic glands and vessels, the muscles, the tendons and tendon-sheaths, the nerves, the veins, the arteries and the bones, and with amputations." The dozen years during which this book has been before the medical profession have established its position as a standard of recognized value. The appearance of the subsequent volumes will be awaited with confident expectation of their merit.

Prehistoric Man. By W. L. H. DUCKWORTH, M.A., M.D., Sc.D. Cambridge: The University Press. New York: G. P. Putnam's Sons. 1912.

This volume in the series of Cambridge Manuals of Science and Literature deals with the latest progress in archeologic research into the origins of prehistoric man, terminating with the Aurignacian division of the Paleolithic Age. It presents the data and discusses impartially the interpretation of the several discoveries relating to paleolithic man and his precursors; and describes the conditions under which these discoveries have been made in caves and in alluvial deposits, and their relation to associated animals and implements. Based upon this exposition, the author states the present theories of human fossils and geologic chronology, and of human evolution in the light of recent research. This work is of interest to physicians from its bearing on the sequence of enlarging cranial capacity and assumption of the erect posture, with its important anatomic and functional results, and from its evidence of a diphyletic or polyphyletic mode of human descent. The present monograph is an admirably succinct and clear depiction of the fragmentary but definite information which science has thus far been able to acquire about the life and history of "Dowb, the first of all his race."

Compendium of Diseases of the Skin with a Therapeutic Formulary. By L. DUNCAN BULKLEY, A.M., M.D. New York: Paul B. Hoeber. 1912.

In this fifth edition of his Manual of Diseases of the Skin, under a new name, the author states that he has deemed it best to make no radical changes in the character of the work. It contains, therefore, little that represents the advances in dermatology during the last three years, and maintains the small compass of the earlier additions.

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ANTIVIVISECTION AND THE METHODS OF MEDICAL SCIENCE IN ANIMAL EXPERIMENTATION.

In the issue of the Journal for July 11 we published a communication from Mr. Stephen Coleridge, of London, in which he attempts what he is pleased to term the "task of deflating" Dr. W. W. Keen, of Philadelphia, on account of the latter's article in the issues of the Journal for May 2 and May 9 on "The Influence of Anti-Vivisection on Character." In another column of the Journal this week we print a much longer, undated communication from Mrs. Caroline Earle White, corresponding secretary of the American Anti-Vivisection Society, in which she undertakes a rejoinder to certain of the statements in the same article. It is only just that these two communications should appear in the Journal, since the cause of truth is never better served than by the free expression and fair hearing of diverse opinions about it. Moreover, in the present instances, these letters afford further evidence of precisely the effects which Dr. Keen predicates of antivivisection upon character.

We do not conceive that our distinguished and esteemed contributor, Dr. Keen, needs any defence against the rejoinders of the two correspondents in question, or indeed that their replies require particular comment. Without regard, however, to the questionable courtesy of Mr. Coleridge's terminal phraseology, it seems equitable to point out some of the fallacies in Mrs. White's forensic.

It is to be noted that much of the evidence cited by Mrs White, as by other antivivisectionists, of the "perfectly harrowing" details of animal experimentation is that of "eye-witnesses," usually helpers, cleaners, or other employees, persons often of the type who "swoon when they do look on blood," utterly incompetent to judge of such matters or to report accurately or impartially what they see, persons in whose eyes all surgeons are monsters of cruelty and to whom the cries and struggles of a human patient going under ether seem evidence of horrible agony, and post-operative suffering sufficient ground to condemn all surgery as barbaric. Moreover, as has been frequently pointed out, such accounts are often taken from the less reputable daily papers, whose reporters exploit and sensationalize them with the same irresponsibility and cheerful indifference to accuracy which they sometimes exhibit in relation to other affairs and which make many press reports of medical matters notoriously unreliable.

In her comment on Harley and Barret's experiments on dogs, reported in the *Journal of Physiology*, Mrs. White says, "It is not at all probable that the dog was kept so deeply under ether all the time as to feel no pain." There seems absolutely no reason whatever for such an assumption on her part, any more than there would be for the inference that a human patient was not kept completely anesthetized while on the operating table. In speaking of the "fever inseparable from the healing of abdominal wounds," Mrs. White merely evidences her unfamiliarity with the fact that no fever is associated with the healing of a clean abdominal wound in aseptic surgery, a beneficent fact which thousands of human beings now alive and millions yet unborn owe in considerable part to the results of animal experimentation.

In one part of her letter, Mrs White refers to Sir Francis Treves, in another to Sir Frederick Treves. This of course is merely an unimportant error of the pen. In reference to Dr. Wentworth's experiments in lumbar puncture, Mrs. White acknowledges that she "was careless in saying" that all the children died, and that in alluding to the experiments she "unconsciously exaggerated their apparent enormity." This habit of carelessness, inaccuracy and unconscious exaggeration seems rather common among anti-vivisectionists.

In spite of what Mrs. White says, the fact remains that in epidemic cerebrospinal meningitis the mortality has been greatly reduced among cases treated promptly with Flexner's anti-meningitic serum. Figures purporting to show that this is not so are derived by the inclusion of late and unrecognized cases and of cases of meningitis due to other organisms than the

diplococcus intracellularis, against which alone it is claimed that the serum is specific. Moreover, even in unselected cases of meningitis the mortality has been considerably reduced. In a recently published book by Mr. Stephen Paget, "For and Against Experiments on Animals," quotation is made as follows (p. 111) from a paper by Dr. Gardner Robb, of Belfast, Ireland, on the value of the serum-treatment of cerebro-spinal meningitis.

"My own experience has been that of 275 cases under my care in hospital before the use of the serum was commenced, 72.3% died; while, of the 98 cases treated with the serum, 29.6% died. No selection of cases was made: *every* case sent into hospital since September 1907 has been treated in this way. . . . Great as this change in the death-rate has been, it is not more striking than the improvement in the course run by the cases; for, whereas it was common to have cases running on into weeks and even months, such cases are no longer met with."

This is another of the beneficent results of medical science due largely to animal experimentation. For detailed account of other benefits to humanity, similarly made possible, and for a full and impartial presentation of evidence on both sides of the subject in question, we would commend the perusal of Mr. Paget's book to Mrs. White and to all other antivivisectionists.

It is perfectly true, as Mrs. White says, that yellow fever "is still flourishing in a number of places in South America, Central America and Mexico." So it will in any place where the sure prophylactic principles, learned and demonstrated by experiment, are not applied. But it does not flourish in Cuba, or in Louisiana, or in the Canal Zone, or anywhere when those principles are applied conscientiously and efficiently.

In the issue of the *Lancet* for July 13 (p. 97) is an editorial comment on Dr. Keen's article, which we would also refer to the attention of Mrs. White and other antivivisectionists. This comment notes particularly the half-dozen letters, written to Dr. Keen, with the remark, "It is curious to reflect that the depths of savagery latent in the human heart should be stirred by the cry of philanthropy." Mrs. White, however, admits that "two or three" of these letters "are positively wicked," and thereby acknowledges that antivivisection has had some deleterious effect upon the character of their authors. Commenting on Dr. Keen's list of "achievements of the friends of research," the *Lancet* editorial continues:

"To his enumeration he might, indeed, have added the late Lord Lister's wonderful experiments on the living animal, undertaken when he was working at the use of the catgut ligature. Records of many of these and similar experiments now lie in the library of the Royal College of Surgeons of England in their unpublished manuscript form. In all these valuable researches Lister seems always to have been sparing of life. One calf sufficed to establish one fact, and so on."

To that careful series of animal experiments, carried out under the inspired genius of Lister, himself a Quaker, humanity owes to-day the benefits of the absorbable ligature, not to mention those of aseptic surgery. Moreover, the statement with regard to Lister's work is an illustration that the methods of legitimate animal experimentation are fundamentally humane. There is no question that in the past cruelties have occasionally been committed in the name of science. These no honorable person would hesitate to condemn. Happily they are no longer practiced. Modern medical science does not shun or fear investigation of its methods. It were as unreasonable to condemn it for the past offences of a few of its unworthy representatives as it would be to condemn Christianity for the Massacre of St. Bartholomew, or the Spanish Inquisition, or the hanging of witches at Salem.

EXTENSION COURSE IN NEUROLOGY AND PSYCHIATRY.

A VERY noticeable feature in medical education of late has been the development of postgraduate teaching. This is a natural outcome of the necessities of the situation, and an expression of the realization that the four or five years of undergraduate medical instruction is wholly inadequate to meet the advances of knowledge. As a result, increasing attention has been given to the development of special graduate courses of instruction at many of the established medical schools, as well as at institutions devoted wholly to this type of teaching. Within a year, Harvard University has seen fit to establish a department under the control of a separate dean in order that graduate teaching might be more independently and more effectually prosecuted. It is not surprising, therefore, that courses of study in more or less specialized fields should be elaborated for the benefit of graduate students. A notable accession to this group of courses is one recently announced by the Fordham Univeristy School of Medicine in New York under the heading, "Medical Extension Course in Nervous and Mental Diseases." This attempt is the more

noteworthy because of its comprehensiveness, and particularly because of its somewhat international character, as shown by the men who are to give instruction. Among these we note such names as Dr. Henry Head, who will lecture on the sensory nervous system; Dr. Gordon Holmes, whose subject is "The Topographical Diagnosis of Diseases of the Central Nervous System"; Dr. Carl Jung, "Mental Mechanisms in Health and Disease"; Dr. Colin K. Russell, Dr. William A. White and Dr. H. H. Goddard. In addition to these lecturers, men distinguished in neurology and psychiatry and connected with the faculty of the university will also give instruction. The course, of about three weeks' duration, includes not only the recent researches in psychiatry and neurology but also attempts a review of the applied anatomy, diagnosis of structural lesions, and, what must be regarded as of much importance, the relation of disorders of the nervous system to affections commonly included under internal medicine. Much attention will be given to recent psychological investigation, psychotherapy, psycho-analysis and the various forms of so-called mechanical treatment. In general, judging from the prospectus, the course is designed to bring the student into close relation with the entire field of nervous disease, including psychiatry. The time for this, three weeks, is undoubtedly short; but this is in a measure compensated by the intensive character of the study and the number of hours each day which the student is supposed to devote to his work. The plan of which this course is the beginning will certainly commend itself to physicians, or students of allied branches, who feel the need of a comprehensive review of definite branches of medicine. We have no doubt the course will prove a success and be an incentive to other institutions to adopt a similar method of presenting in complete form the progress in various lines of medical research.

OBSTETRIC MEDICAL EDUCATION AND THE PROBLEM OF THE MIDWIFE.

In another column of this issue of the Journal we publish an article on "Immigration and the Midwife Problem," which seems a contribution of distinct value to the existing literature on the midwife question. Certainly it is a timely suggestion that the immigration officials should ascertain the number of trained midwives who are coming to this country. Such information would be of importance, and *prima facie* it would seem that there should be no great difficulty in establishing a system whereby it could be obtained.

Few, we imagine, will disagree with the author of this article that the midwife who is a graduate of the European continental schools is, at the time of her graduation, or even at the time of her entrance into practice in America, the equal of many of the practitioners with whom she will compete in the slums of our large cities. This is acknowledged by practically all who are familiar with the midwife situation to-day. Few also will dissent from the statement that most medical students in this country are deficiently trained in obstetrics. This unfortunately is a fact, as evidenced by the recent report of the committee delegated to investigate this question.

The subject of obstetric education in our medical schools is of such vital importance that in comparison with it, the midwife problem seems of almost minor consideration. It is not so much that we have not sufficient clinical material for training our students in obstetrics, as that many schools do not make use of their material for this purpose wisely and systematically. It might therefore seem better to direct our energy and attention to the proper utilization of this material for medical students than to plan for its diversion to the training of midwives.

Our contributor admits that relatively few of our physicians are thoroughly trained in obstetrics, but feels sure that the midwives who are graduates of foreign schools are capable of giving the necessary attention to the mothers and babies of the slums. He does not, however, mention the subject of operative obstetrics. These foreign women are trained to care for the normal but not for the abnormal. In the *Heimath* they have been taught by fear of heavy punishment to call upon the trained medical man when trouble arises. Here in America, they are without laws to guide them, and often without trained medical help.

The statement that the midwife is the "medical attendant, nurse, housekeeper and general adviser regarding the care of the infant," deserves somewhat careful scrutiny. As a matter of fact, a large proportion of the continental European midwives have been taught in their schools that they are not to engage in any other manual duties than those of the obstetrician. They realize the importance of keeping their hands clean and soft, and usually limit themselves to the care of mother and child, leaving the housekeeping to other hands.

In speaking of the value of midwives in pre-

serving the lives of mothers, our contributor quotes (p. 115) from British statistics. Let us compare with his statement the following paragraph from the "Report of the Departmental Committee to Consider the Working of the Midwives Act of 1902" in England:

"Puerperal sepsis, as measured by the deaths from this cause per 1,000 births, has declined from 2.15 in 1889 to 1.59 in 1907. The Midwives Act came into operation in 1903, but the death-rate from this cause was as low as 1.91 in 1898; it is therefore an open question as to what proportion of the decline is due to natural variation, and what proportion to the administration of the Midwives Act."

After all, calculations considering the number of deaths from puerperal sepsis in relation to the total number of births are perhaps likely to give less opportunity for error than figures based on the number of births per 100,000 living females.

It seems hardly warrantable to say that "all plans for the elimination of the midwives are at this time out of the question as illogical and impractical"; or, in view of the distinction of some of those who have criticized the midwife in America, to say that the restriction of midwifery is "constantly suffering from criticism based upon inadequate and unintelligent study." In this connection we would direct attention particularly to the article by Dr. Edward P. Davis in the issue of the *Journal of the American Medical Association* for July 6 (vol. lix, p. 21) on "Modern Obstetrics, with Relation to the General Practitioner, the Student, the Midwife and the Specialist." His criticism surely cannot be classed with that "based upon inadequate and unintelligent study," yet he says of midwives in the United States: "It is my belief that they are a menace to the health of the community, an unnecessary evil, and a nuisance."

We are on the eve of a great awakening in obstetric education in America. This awakening should lead to establishment in medical schools throughout the country of really adequate clinical training in obstetrics. The efficient organization of this training in the large centers of medical education should provide adequately for the care, by competent young physicians, medical students, nurses and social workers, of the poor in the city slums now alleged to need the services of midwives. With this organization the apparent need for midwives should disappear. With their disappearance should vanish the unfortunate and undesirable anomalies of the dual standard and the divided responsibility in obstetrics. For the present, the midwife should be not encouraged but watched, until we have solved the larger and infinitely more important question of the obstetric education of the medical student of to-day, the doctor of to-morrow. The solution of his problem will solve that of the midwife.

THE AUTUMNAL DISEASE.

THOUGH typhoid fever manifests itself throughout the year, it has its highest mortality in the fall. This was formerly considered to be largely because of infection in the country by vacationing city people. The rural wells, the rural milk supplies, were believed the chief means of infection. That these have been and are agencies is indubitable; but it is probable that the fly is an important factor leading to the autumnal typhoid mortality. Counting back two months from the fall rise in typhoid mortality we find the incubation period to correspond with the height of the curve of fly prevalence (and also, it may be noted in passing, to the mortality rise from diarrheal diseases). There is also a temperature correspondence; but of course the hot weather, though predisposing, is not responsible for infection, except in so far as it is congenial to fly breeding and to bacterial development. The activity of the house fly is in proportion to the temperature rise; and the time of this insect's greatest activity corresponds precisely with the time of contracting typhoid and also the dysenteries. The typhoid incubation is about a fortnight; thence to the end of the disease is from four to six weeks — which facts would account for much (though of course not all) of the high autumnal typhoid death-rate.

There still, of course, remain cases of typhoid infection incurred out of town and away from their homes by city people. It were, therefore, the part of wisdom for physicians to counsel their patients, about to travel or to take their vacations, to be inoculated with antityphoid vaccine. Such inoculations should be especially submitted to by traveling business men, who may in various ways be subjected to this ingestion infection. And since typhoid is peculiarly a disease of youth it would be advisable for collegians and boarding-school students to submit to this simple preventive measure before leaving home. Tourists should also be vaccinated; because though they may not themselves manifest the disease, they may nevertheless become typhoid carriers, introducing the bacillus into regions hitherto exempt. It is considered that this vaccine protection

against typhoid is effective for at least two years; and that one inoculation will afford considerable protection for many years more.

It is counselled by Rucker [1] that the layman, in his choice of places in which to spend the summer, should ask regarding the occurrence of typhoid fever in the place intended for the vacation, and should determine what infection possibilities there are in the prospective locality; whether the facilities for disposing of human excreta are sanitary; whether the region has a surface privy to which domestic animals and fowls have access; whether privies and cesspools are near wells; whether drinking water is taken from streams which receive the drainage from outhouses; whether toilets are screened against flies; whether the houses of the natives are screened; whether there has been typhoid in any of the rural families. Rucker, moreover, counsels the tourist that if he have any misgivings, he had best consult the local health officer. This is good advice, so far as it goes; and its observance, together with the employment of antityphoid inoculation should do much to reduce the antumnal mortality from typhoid fever.

[1] Rucker, W. C.: Sanitary Advice for Summer Tourists. Pub. Health and Mar.-Hosp. Rep., May 24, 1912.

MEDICAL NOTES.

Meeting of American Medical Association. — It is announced that the next annual meeting of the American Medical Association will be held from June 17 to 20, 1913, at Minneapolis, Minn.

Arrest of Opium Smugglers. — Report from Philadelphia states that on July 14 two Siamese and a Chinese were arrested in that city on a charge of attempting to smuggle opium ashore from the steamship *Hawaian*.

Research on Tuberculosis. — Dr. Arthur I. Kendall, of Boston, whose appointment was announced in last week's issue of the Journal as professor of bacteriology at Northwestern University, has been placed in charge of the research work in that institution on tuberculosis, which was recently endowed with $250,000 by Mr. James A. Patten, of Evanston, Ill.

An Important Medico-Legal Decision. — Report from Washington states that on July 17 the corporation court of Norfolk rendered a decision that a druggist's clerk, who had signed a physician's name to a prescription for cocaine, was not guilty of forging, since no financial fraud was involved. The importance of this decision as a precedent in cases where dangerous drugs may be illegally obtained by this method seems considerable. It is said that the prosecuting attorney will petition the legislature for action to meet the situation.

Plague Mortality in India. — The total number of deaths from bubonic plague in India during the decennium from 1901 to 1911 is estimated at 7,250,000.

Two Fly-Killing Contests. — Report from Norfolk, Va., on July 17, states that in the recent fly-killing contest in that city the total number of flies killed was 6,627,000. In a similar competition at New Orleans, La., the first prize of $10 is said to have been won by a little girl for killing 648,000 flies.

Dr. Kocher's Anniversary. — Dr. Theodor Kocher, the eminent Swiss surgeon, has recently celebrated his fortieth anniversary as professor of surgery at the University of Berne. The one hundred and sixteenth volume of the *Deutsche Zeitschrift für Chirurgie* was published as a Festschrift for Dr. Kocher on this occasion. He himself presented to the University the sum of 200,000 francs to be used for purposes of research.

Foreign Medical Congresses. — During the current week the eightieth annual meeting of the British Medical Association is in session at Liverpool. From July 24 to 30 the first International Eugenics Congress will be held at the University of London; from July 25 to 28 the British Royal Institute of Public Health will hold its congress at Berlin; and from July 26 to 31 the sixth International Congress of Radiology and Medical Electrology will take place at Prague, Austria.

American Representatives at Bicentenary of Trinity College Medical School. — At the recent celebration of the bicentennial anniversary of Trinity College Medical School, Dublin, which was described editorially in the issue of the Journal for July 11, addresses were presented in behalf of Harvard University by Dr. Henry A. Christian and Dr. Channing Frothingham, Jr., of Boston; in behalf of the University of Michigan by Dr. A. W. Hewlett, of Ann Arbor; and in behalf of the University of Pennsylvania by Dr. Edgar F. Smith, of Philadelphia. Among the honorary degrees conferred was that of Sc.D. on Dr. Franklin P. Mall,

professor of anatomy, and Dr. J. Whitridge Williams, professor of obstetrics, at Johns Hopkins University, Baltimore.

ILLNESS IN THE JAPANESE IMPERIAL FAMILY. — Report from Tokio on July 20 states that Mutsuhito, the Mikado of Japan, is critically ill. It is said that he has had chronic cardio-renal disease for some years and now has an intercurrent typhoid infection. The crown prince Yoshihito is reported to be sick with chicken-pox.

HONORARY DEGREES FOR BRITISH PHYSICIANS. — Among honorary degrees recently conferred on British physicians is that of LL.D., by the University of Edinburgh, on Dr. J. Theodore Cash, F.R.S., professor of materia medica at the University of Aberdeen; that of Sc.D., by Durham University, on Dr. L. P. Anderson Stuart, professor of physiology and dean of the faculty of medicine in the University of Sydney, N. S. W., and that of Sc.D. by Cambridge University on Dr. Howard Marsh, professor of anatomy and master of Downing College, Cambridge.

THE OSCILLOGRAPH. — At a recent meeting in London of the Congress of the Universities of the Empire, a demonstration was given of the oscillograph, a new instrument of foreign invention for studying the action of the heart, which makes it possible to obtain simultaneous data of the electric condition of the heart, of the heart sounds, of the respiration, of the pulse, and of the time, and to record these five values by photography.

"In principle the instrument is similar to the string galvanometer, which has long been used to record the electrical condition of the heart. It consists essentially of an electro-magnet, with four pairs of poles. Between each pair of poles a tiny mirror is hung by two threads. Light is thrown on these four mirrors, and reflected by them either on to a screen or on to the lens of a camera, and there is an arrangement for taking a simultaneous record of the time. The electrical condition of the beating heart is recorded in the usual manner. The mechanical movements of respiration, and of the pulse and the actual heart sounds, are connected with microphones, and by the alteration in the resistance of the electrical circuits thus produced they are translated into charges of electric currents, and so operate the mirrors of the apparatus."

BUBONIC PLAGUE IN PORTO RICO. — In last week's issue of the JOURNAL we commented at length editorially on the progress of the present epidemic of bubonic plague in Porto Rico. Since that time there has been a marked abatement in the spread of the infection. On July 13 two new cases of the disease were reported from the section of San Juan known as Puerto de Tierra; on July 14 one fatal case was reported from Dorado, a town about 12 miles distant from San Juan, and on July 21 3 deaths from San Juan, making a total to July 21 of 40 cases and 26 deaths in the island. On July 22 one new case was discovered at Havana, making a total of 3 cases and 2 deaths in that city. On July 15, the following circular letter of instruction was issued by Surgeon-General Blue to all medical officers in charge of quarantine stations on the Atlantic and Pacific coasts:

"*Sir*, — You are directed to fumigate throughout, for the destruction of rats, all vessels arriving from ports in South America (including the river ports thereof), and in the West Indies.

"In the event that any of these vessels are carrying perishable cargoes, you are directed to remove, upon a wharf or lighter, during the fumigation process, such perishable cargoes, or else arrange with the bureau by telegraph for the fumigation of the vessel at the wharf of the port of arrival, said fumigation to be done under strict precautions as to the possible escape of rats from the vessel."

The weekly report of the United States Public Health and Marine-Hospital Service for July 19 contains an extensive account, by Dr. W. C. Rucker, of the measures necessary for the eradication and prevention of bubonic plague.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, July 16, 1912, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 15, scarlatina 6, typhoid fever 13, measles 85, smallpox 0, tuberculosis 68.

The death-rate of the reported deaths for the week ending July 16, 1912, was 16.22.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday noon, July 13, 1912, was 208, against 350 the corresponding week of last year, showing a decrease of 142 deaths, and making the death-rate for the week, 15.06. Of this number 106 were males and 102 were females; 205 were white and 3 colored; 127 were born in the United States, 73 in foreign countries and 8 unknown; 39 were of American parentage, 139 of foreign parentage and 30 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 11 cases and 0 deaths; scarlatina, 8 cases and 0 deaths; typhoid fever, 12 cases and 1

death; measles, 86 cases and 3 deaths; tuberculosis, 71 cases and 20 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 11, whooping cough 1, heart disease 29, bronchitis 1. There were 28 deaths from violent causes. The number of children who died under one year was 43; the number under five years, 61. The number of persons who died over sixty years of age was 53. The deaths in hospitals and public institutions were 84.

Boston Milk Dealers Fined. — Of twelve Boston milk dealers arraigned last week before the local courts for selling milk without a license to do so, or for having in their possession milk below the standard required by law, nine were convicted and were fined amounts ranging from $10 to $50, and aggregating $145.

A Milk Supply Condemned. — Last week the Boston Board of Health forbade the sale in this city of all milk supplied to a local contractor from thirty or more farms in the vicinity of St. Albans, Vt., on the ground that diphtheria is prevalent there and that brooks flowing through the surrounding pastures have been found contaminated with sewage.

Milk Fund for Sick Babies. — The treasurer of the Boston Milk Fund for Sick Babies reports that since June 29 a total of $3,362 has been received. Milk is now being supplied from this fund to 40 babies. Further contributions are earnestly desired, and should be sent to Mrs. Thomas Morgan Rotch, 197 Commonwealth Avenue, Boston.

Progress of Infants' Hospital Building Fund. — The total of subscriptions to the building fund of the Infants' Hospital, Boston, now amounts to $66,024.05. There are needed $60,000 to complete the new building near the Harvard Medical School, and it is earnestly hoped that this sum may be raised before autumn. Contributions should be sent to Kidder, Peabody, and Company, Boston.

Health Activities in Lynn. — A milk station was opened last week in Lynn, Mass., by the local board of associated charities, for the distribution among the poor of modified milk at nominal cost for infants who cannot be breast-fed.

The Lynn Board of Health last week issued an order compelling the removal of a local leather company on the ground that its factory is a public nuisance.

NEW YORK.

Hospital Bequests. — By the will of the late Solomon Wolf, of Worcester, Mass., a large part of his estate, valued at about $150,000, is left to hospitals in Worcester and New York City. The benefactions to New York institutions consist of a tract of land, with the buildings on it, on New Lots Avenue, Brooklyn, to St. Mary's Hospital in that borough, and some real estate in East New York to Mount Sinai Hospital, Manhattan.

The Rational Fourth. — Dr. D. C. Potter, director of the board of ambulance, reports that the total number of ambulance calls in the city on the Fourth of July was 277. This is 67 less than on the Fourth last year, and only 16 more than the daily average of the whole year. One hundred and eighty of the calls were in the Borough of Manhattan, 111 in Brooklyn, 19 in the Bronx, 14 in Queens and 3 in Richmond.

Housing of Tuberculates. — Statistics compiled by the tuberculosis committee of the Charity Organization Society show that of 29,460 cases on the current tuberculosis register, no less than 5,053 are homeless. One thousand sixty-four of these patients were found to be actually without any place to call their own, and 2,099 were "not found," while 1,346 lived in lodging houses and 544 in furnished rooms. Of course, it is impossible to keep up any systematic treatment in this class of cases, and the Health Department joins with the committee in urging more hospital facilities.

Current Literature.

Medical Record.
July 13, 1912.

1. Einhorn, M. *Indications for Operations in Diseases of the Digestive Tract.*
2. Knopf, S. A. *The Immigration of the Tuberculous into the United States.*
3. *Allan, J. *Anesthesia in Submucous Resection of the Septum Nasi.*
4. Brown, S. H. *Visual Acuity and the Montessori Method of Instructing Children.*
5. Boyd, W. A. *A Contribution to the Study of Folie à Deux, with Report of a Case.*
6. Hough, P. B. *What Part should the General Practitioner Take in the Campaign for the Conservation of Vision?*
7. Williams, T. A. *An Unusual Case of Tabes with Toxic Complications in the Etiology.*

3. Allan believes that in the majority of cases no general anesthetic is required for submucous resection of the

nasal septum. Cocaine-adrenalin solution applied locally affords the necessary anesthesia and controls hemorrhage and guards against ill-effects during and after operation. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JULY 13, 1912.

1. SWIFT, H. F., AND ELLIS, A. W. M. *The Direct Treatment of Syphilitic Diseases of the Central Nervous System.*
2. *HAYS, H. *Indications for Removal of the Faucial Tonsils.*
3. WILLIAMS, J. R. *A Study of Infant Mortality in Rochester; the Relation of Market Milk Thereto.*
4. FISK, E. L. *The Physical Welfare of Policyholders.*
5. THOMSON, W. R. *Mixed Vaccines in Septic Conditions.*
6. FISHER, M. K. *Roentgen Therapy in Acne.*
7. ORENSTEIN, A. *Cryptogenetic Sepsis Treated with Autogenous Vaccine.*
8. BHARATI, B. P. *The Curiosities of Hindu Medicine.*

2. Hays believes that as the tonsils have a definite function in early childhood they should not be removed without some special indication before four years of age. Small buried tonsils associated with enlarged cervical glands should always be completely removed unless some other definite cause is found for the condition. One of the most important points in judging whether a tonsil should be removed or not is the size of that tonsil in relation to the individual throat. All tonsils, large or small, which seriously interfere with respiration should be removed. Many cases of middle ear catarrh can be prevented by removal of the tonsils. The promiscuous removal of the tonsils of children without the finding of some associated pathological condition is pernicious. Operative cases should be carefully selected. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JULY 6, 1912.

1. CANNON, W. B. *The Functions of the Large Intestine.*
2. HORSLEY, J. S. *A New Method of Suturing Blood Vessels.*
3. KOLISCHER, G. *A Prostatic Study.*
4. WALLHAUSER, H. J. F. *A Case of Pityriasis Rubra (Hebra).*
5. GOTTHEIL, W. S. *Cancerous Degeneration in Chronic Leg Ulcer.*
6. ROSENFELD, J. *Successive Cow-Pox Vaccination.*
7. MAGITOT, A. *Transplantation of the Human Cornea Previously Preserved in an Antiseptic Fluid.*
8. *DAVIS, E. P. *Modern Obstetrics, with Relation to the General Practitioner, the Student, the Midwife and the Specialist.*
9. GOULD, G. M. *Reading a Book-Page Instantaneously: A Case of Unique Visual Power.*
10. MAYO, C. H. *Factors of Safety in Operating for Exophthalmic Goitre.*
11. QUAIN, E. P. *Some Observations on Catharsis.*
12. GOFFE, J. R. *Intra-abdominal Pressure: Its Importance in Maintaining Static Equilibrium.*
13. RAVITCH, M. L. *A Plea for an Earlier Diagnosis of Pellagra.*
14. LEHR, L. C. *Report of a Case of Gonorrheal Pyelitis.*
15. HARRISON, T. L. *Cæsarean Section on a Ranch.*

8. See editorial, p. 134.

THE LANCET.

JULY 6, 1912.

1. DUDGEON, L. S. *The Croonian Lectures on the Pathology of Immunity as Illustrated by the Behavior of Fluid Exudates from the Tissues and Various Body Cavities in Acute and Chronic Bacterial Infections, More Especially with Regard to the Problem of Aggressins. Lecture IV.*
2. *JONES, F. W. *The Vascular Lesions in Some Cases of Middle Meningeal Hemorrhage.*
3. HUNTER, W. K. *Note on a Case of Angina Abdominis.*
4. HEPBURN, M. L. *The Ophthalmology of General Practice.*
5. SIMPSON, W. J. *Observations on the Etiology of Vaccinia and on the Cultivation of the Microbe of Variola.*
6. PONDER, C. *The Examination of Diphtheria Specimens. A New Technic in Staining with Toluidin Blue.*
7. LOCKWOOD, C. B., AND HARMER, W. D. *Removal of an Intrathoracic Thyroid Tumor.*
8. BALFOUR, A. *A Blood Puzzle Solved. The So-called X-Bodies.*
9. HARRIS, J. D. *Ultra-violet Light in the Treatment of Alopecia.*
10. LAWRENCE, H. G. *An Unusual Case of Prolonged Fever Presenting Acute Hepatic Changes.*

2. Jones concludes from his studies of his own cases of "middle meningeal hemorrhage" and those of others that in the vast majority of instances it is the venous sinus which is injured, and from which the bleeding occurs, rather than the artery. This is especially true in children and in all lesser forms of injury. It is probably only in rare severe cases that the artery itself is damaged. He emphasizes the fact that in children especially, any cranial injury, however slight, should be regarded as the possible causation of a dangerous and possibly fatal hematoma. [J. B. H.]

BRITISH MEDICAL JOURNAL.

JULY 6, 1912.

1. *JORDAN, J. F. *The Ingleby Lectures on Puerperal Infection, with Special Reference to Vaccine Treatment.*
2. *MURRAY, R. W. *The Etiology of Torsion of the Testis.*
3. GRANT, J. W. G. *Acute Epididymitis Produced by Muscular Strain.*
4. BALFOUR, A. *Notes on Sleeping Sickness: Suggestions as Regards Gland Puncture and the Trapping of Tsetse Flies.*
5. EDRIDGE-GREEN, F. W. *The Necessity for the Use of Color Names in a Test for Color Blindness.*

1. In taking up puerperal infection Jordan first considers the mild types and next the acute infections so often followed by early death. He gives numerous cases in detail, discussing the various causative organisms with special reference to one he calls the "streptococcus puerperalis." Treatment should primarily be preventive; this he describes. He advocates the injection of a vaccine of "S. puerperalis" in every case before labor comes on as an additional precaution; for treatment to have any chance of success it must be started early in the disease.

2. Murray describes a case of torsion of the testis and the various theories regarding its etiology and its differential diagnosis. He believes it to be primarily of congenital origin and not acquired. [J. B. H.]

THE PRACTITIONER.

JULY, 1912.

1. SAVAGE, G. H. *Some Relationships between Fits and Mental Disorder.*
2. *BISHOP, E. S. *After-Treatment of Abdominal Sections, Based upon 1,232 Cases.*
3. *LANGMEAD, F. *Cyclical Vomiting.*
4. *NEWMAN, D. *Primary and Early Secondary Tuberculous Cystitis.*
5. TUBBY, A. H. *Orthopedic Surgery.*
6. *ROTH, P. B. *Measurement of Deformity.*
7. THURSFIELD, H. *Review of Literature on Diseases of Children.*
8. JOLY, J. S. *Some Recent Advances in Syphilis and Gonorrhea.*
9. TRESIDDER, P. E., AND TRESIDDER, S. *Treatment of Syphilis by Salvarsan or "609."*
10. HAYES, R. *Treatment of Syphilis of the Nervous System by Aachen Methods.*
11. MELVILLE, G. *Should Venereal Diseases be Notified?*
12. HARPER, J. *Diagnosis and Treatment of Chronic Suppurations of the Maxillary Sinus.*
13. SIBLEY, W. K. *A New Method of Applying Carbon Dioxide Snow.*
14. SECRETAN, W. B. *Surgical Shock.*

15. Hughes, B. *Treatment of Cellulitis with Special Reference to the Hand and Arm.*
16. Rae, J. *Ronjat and Bidloo.*

2. This is a characteristic article covering an immense subject in a somewhat diffuse and general way. He discusses the two classes of cases and their after-treatment: (1) Those in which the peritoneum has not come into contact with any irritant or septic material, and (2) those in which it *has been* or *still is* exposed to such contact.

3. Langmead discusses cyclical vomiting as to prodromata, symptoms, etiology, diagnosis, prognosis, morbid anatomy, pathogenesis and treatment, quoting extensively from prominent American and English authors. Though the article contains nothing new, it furnishes a good general review of the subject.

4. Newman describes the symptoms of tuberculous cystitis, the appearances on cystoscopic examination, and its treatment. An important early symptom is frequency of urination, a characteristic is the remission of symptoms, hematuria is often the first symptom. He presents four illustrative cases in detail. In treatment, it is important first to treat the primary condition. He discusses the merits of suprapubic cystostomy as applied to this condition and discusses the technic of the operation. He makes no mention of the use of tuberculin.

6. In this paper Roth discusses some well-known methods of measuring deformity in various orthopedic conditions. [J. B. H.]

Edinburgh Medical Journal.

July, 1912.

1. *Brown, J. J. G. *Ataxia: A Symptom.*
2. *James, A. *Trauma as a Factor in Disease.*
3. Lackie, J. L. *An Experience of Three Cases of Pubiotomy.*
4. *Fordyce, A. D. *Changes in the Thyroid Gland under Thyroid Feeding.*

1. In the second Morison Lecture, Brown continues his discussion of ataxia in a most detailed and thorough manner with numerous excellent plates and illustrations. This paper is of value to those interested in the subject.

2. James, in his fourth paper on the subject, continues to consider the effects of trauma on the brain and nervous system, and as a factor in various pathological conditions.

4. Fordyce describes his series of experiments on rats and other animals and his results as to the changes in the thyroid gland after thyroid feeding more or less prolonged. The effects of thyroid administration varied with the diet, being most marked with milk and least with oatmeal diet. The changes in the glands following thyroid feeding along with other diets served to show that thyroid administrations tended to diminish in certain directions the activity of the gland. There are some excellent plates of microscopical sections showing the exact changes which took place, which consisted of (1) an increase in colloid material, (2) a flattening out of the cells, and (3) the thinning of the trabeculæ. [J. B. H.]

Münchener Medizinische Wochenschrift. No. 24.

June 11, 1912.

1. *Abderhalden, E. *Diagnosis of Pregnancy by the Optic Method and by Dialysis.*
2. Kehr, H. *Duodenal Ulcer.* (To be concluded.)
3. Massini, R. *The Wassermann Reaction in Internal Diseases.* (To be concluded.)
4. *Lissmann. *Treatment of Sexual Impotence.*
5. Thedering. *Indications of the Quartz Lamp for the Treatment of Skin Diseases.*
6. v. Starck, W. *Diabetes Mellitus following Pertussis.*
7. Spaet, F. *A Small Epidemic of Trichinosis in Cadolzburg.*
8. Klages. *Death from Heart Disease in Pregnancy.*
9. Grützner. *Two Etiologically Interesting Cases of Puerperal Fever.*
10. Vidal. *Overcoming by Advice Inability to Nurse.*
11. Mohr. *Exostosis on the Upper Surface of the Calcaneus.*
12. Sellei, J. *Production of Symptoms of Hypersusceptibility by Albumin from the Body Itself.*

1. The writer, studying the effects of albumins foreign to the blood, discovered that there is present in the plasma of pregnant women a substance which quickly alters the albumins of the placenta. The change can be demonstrated with the polariscope or by dialysis and the Biuret reaction. This reaction was found at all stages of pregnancy and for two weeks after pregnancy. It was not found at all in control patients where there was no pregnancy.

4. Lissmann reports good results in the treatment of impotence in the male by means of injections of yohimbin. [G. C. S.]

Wiener Klinische Wochenschrift. No. 27.

July 4, 1912.

1. *Freund, E. *The Tasks of Medical Chemistry in Tumor Research.*
2. Fränkel, S. *The Chemistry of Carcinoma.*
3. *Aschner, B. *The Physiology of the Mid-Brain.*
4. Lenk, R., and Pollak, L. *The Occurrence of Peptolytic Ferments in Exudates.* (Preliminary communication.)
5. Soucek, A. *A Case of Vasomotor Hemiplegia.*
6. Goldflam, S. *Cases of Pupillary Phenomena.*
7. Barkan, A. *Retrospects and Prospects.*

1. Freund believes that only experimental chemistry can determine the nature of the cancer problem.

3. Aschner expresses his opinion that the autonomous and sympathetic nerve-tracts, as cerebral representatives of the visceral functions, reach not only to the fourth but also to the third ventricle, likewise that trophic changes and metabolic disturbances, hitherto ascribed only to the hypophysis, proceed also in part from the hypothalamus. How far the mid-brain is to be regarded as a regulating center for the internal secretions, and whether the hemato-poietic affections of man can primarily take their origin from this nerve center, must remain for further investigation. [R. M. G.]

Deutsches Archiv für Klinische Medizin. Band 107.

Heft 1. June, 1912.

1. *Ebertz and Stuertz. *Abnormal Form of the Middle Left Curve of the Heart Shadow in Health.*
2. Sahli. *Improved and Simplified Clinical Sphygmobolometer, with a Pocket Sphygmobolometer.*
3. Stursberg, H. *Sphygmographic Findings in Narrowing of the Aorta at the Isthmus.*
4. *Bauer, J. *The Functional Test of the Vegatative Nerve System.*
5. Falter, W. *Observations on the Work of L. Borchardt on the Blood Picture in Diseases of the Glands with Internal Secretion, and Its Relation to Status Lymphaticus.*

1. The authors conclude that the irregularities in the middle left curve of the heart shadow, hitherto regarded as pathognostic of mitral defects, may also be present in health and in pathologic changes of the abdominal viscera.

4. Bauer presents an elaborate study of pharmacodynamic methods of testing nerve function, and reports thirty-six cases in which these tests were applied (adrenalin, pilocarpin, atropin). There is an abundant bibliography. [R. M. G.]

Deutsche Zeitschrift für Chirurgie. Band 114.

Heft 1–3. March, 1912.

1. Leuenberger, S. G. *Tumor Metamorphosis, Based on the Histogenesis of a Papillary Sarcoma of the Urinary Bladder.*
2. Fujii. *Ostitis Fibrosa with Extensive Cyst Formation.*
3. *Mori, T. *The Surgical Treatment of Ascites.*
4. Ewald, P. *The Etiology of Hallux Valgus.*
5. Vecchi, A. *Teratoma, Teratoid Tumors and Mixed Tumors of the Testicle.*
6. Crone, E. *The Treatment of Congenital Club-foot in the Adult, with a Detailed Description of the Operative Technic, by Means of the Schulze Osteoclast.*
7. Faltin, R. *Gangrene of the Large Intestine Cured by Resection, Together with a Method for Restoring the Continuity of the Gut with a Piece of Ileum.*
8. Gangitano, F. *The Retention of the Oxygen of the Blood by Bier's Hyperemic Method. A Spectrophotometric Research.*

9. ERKES, F. *A Collection of Rare Deformities of the Thorax (Congenital).*
10. FRANKENSTEIN, H. *The Open Treatment of Fractures after Lambotte.*
11. MORIAN, R. *Chronic Inflammatory Tumors of the Abdomen.*

3. The author, after a short review of the various methods of dealing with ascites, reports three cases in which he used the nephropexy method of Omi, which consists of joining the kidney capsule with the mesentery in the hope of sidetracking the portal circulation, together with an anastomosis of the large saphenous vein with the peritoneal cavity. The first case was successful, the second two died, but both of the latter showed marked improvement of the ascitic condition. The author observed the following points as a result of his operations. The portion of the omentum which is joined with the kidney in the abdominal cavity must be long enough, in order not to hinder the peristaltic action of the transverse colon, and it must be long enough to allow the return of the kidney to its own place, to prevent kinking of the ureters. In joining the kidneys to the mesentery care must be taken to avoid kinking of the intestines. It is not advisable to use a kidney which has not been decapsulated, as the kidney substance degenerates when joined to the mesentery. For union with the omentum, the left kidney is preferable, as its pedicle is longer than the right pedicle. [J. B. S., JR.]

BAND 114. HEFT. 4–6. APRIL, 1912.

1. *DE QUERVAIN, F. *Surgical Tuberculosis Treated by the Sun's Rays.*
2. *WITMER, J. *The Influence of the Sun's Rays in the High Altitude Treatment of Surgical Tuberculosis.*
3. *FRANZONI, A. *The Influence of the Sun's Rays on Tubercular Sequestrum.*
4. STUMPF, R. *The Isolated Cystic and Fibrous Cystic Changes Occurring in a Single Section of Bone.*
5. *SCHEPELMANN, E. *A Research on Animals on the Question of Prophylaxis after Operation in Infections of the Peritoneal Cavity.*
6. LUXEMBOURG, H. *Several Rare Fractures and Dislocations of the Head of the Humerus, and Especially Combinations of Both Forms of Injury.*
7. *CREITE. *Congenital Absence of the Femur.*
8. LUXEMBOURG, H. *The Treatment of Angiosclerotic Edema of the Lower Extremities by Means of Arteriovenous Anastomosis.*
9. STENGLEIN. *Pantopon-Scopolamin-Local Anesthesia for Abdominal Operations and Especially for Appendectomies.*
10. SUSSENGUTH, L. *A Case of Strangulated Hernia of the Bladder.*
11. LINDEMANN, A. *The Treatment of Ulcers of the Leg.*

1, 2, 3. The first three articles devoted to the sun treatment of tuberculosis form an exceptionally interesting group of papers. The last article of the series, picturing and describing vividly as it does the passage of tubercular sequestra, and the ultimate healing of the afflicted part without the formation of fistulous openings, is especially graphic. With characteristic German thoroughness, the writers have studied the question from many points of view: The influence of the sun on the pulse, the temperature, the blood findings and the blood pressure. Also the penetrating power of the sun's rays at various times of day, and the best time for the exposures to be made. The articles are well worth an examination, calling to mind as they do a therapeutic agent which is always with us, and which we may be prone at times to overlook.

5. The author infected the peritoneum of healthy dogs with B. coli, and then tried the effect of injecting iodine, various sterile oils and collargol. He found that all the animals died except those that had a 1% solution of thymol injected simultaneously with the bacterial infection. He does not regard that the research is finished, as his experiments have opened several new fields, and he is preparing to report further on the subject.

7. The author reports an interesting case of congenital absence of the femur, with x-ray findings. An excellent bibliography accompanies the article. [J. B. S., JR.]

PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE.

JUNE, 1912.

1. FARRANT, R. *A Case of Acromegaly.*
2. LANGMEAD, F. *Thoracic Aneurysm Not Connected with the Aorta.*
3. SPENCER, W. G. *Relief Following Bilateral Nephrotomy and Drainage for Acute Nephritis.*
4. ROTH, P. B. *Congenital Syphilitic Osteo-Periostitis of the Tibia.*
5. GALLOWAY, J. (a) *Tonic Spasm of the Muscles.* (b) *Sclerema Cutis Adultorum.*
6. SUTHERLAND, G. A. *Hemorrhagic Disease in a Child.*
7. HUTCHISON, R. *Fibro-Caseous Tuberculosis of Glands in Neck.*
8. *FAGGE, C. H. *Ununited Fracture of the Ulna.*
9. FITZWILLIAMS, D. C. L. (a) *Multiple Arthritis.* (b) *Bilateral Division of the Ramus of the Jaw for Ankylosis.* (c) *Sarcoma of the Jaw.*
10. SHAW, H. B., AND EDMUNDS, P. J. *Facio-Scapulo-Humeral Type of Muscular Dystrophy.*
11. WEBER, F. P. *Aortic Regurgitation with Extreme Pulsation of the Aortic Arch.*
12. WEBER, F. P., AND DORNER, G. *Persistent Edema of Right Hand and Forearm.*
13. JOHNSON, R. *Actinomycotic Sinuses in the Thigh.*
14. GÉRAUD, H., AND JOHNSTON-LAVIS, H. J. *Gonococcic Empyema.*
15. ADAMSON, H. G. (a) *Persistent Circinate Papulo-Necrotic Eruption.* (b) *Tuberculide of the Type Called Sarcoid.*
16. BUNCH, J. L. (a) *Lupus Erythematosus.* (b) *Generalized Ichthyosis.*
17. DORE, S. E. *Hydroa Vacciniforme vel Estivale.*
18. FOX, W. *Case of Pseudo-Pelade.*
19. GOODALL, E. W. *Eruption Due to Ferrous Iodide.*
20. MORRIS, M. *Ferrous Iodide Rash.*
21. MCDONAGH, J. E. R. *Case of Syringoma.*
22. MACLEOD, J. M. H. *Maculo-Anesthetic Leprosy.*
23. SEQUEIRA, J. H. *Lupus Vulgaris and Scrofulodermia.*
24. WEBER, F. P. *Erythema Nodosum Associated with Mammary Tuberculosis.*
25. WILLIAMS, A. W. *Case of Ichthyosis.*
26. GOODALL, E. W. *Hypersensitiveness.*
27. HARMER, D., AND JONES, H. L. *Treatment of Malignant Growths by Diathermy.*
28. STUART-LOW, W. *Chronic Loss of Voice.*
29. COBBLEDICK, A. S. *Double Ethmoidal Mucocele.*
30. IJARK, H. L. *Chronic Edema of the Fauces.*
31. PATERSON, D. R. *Sarcoma of the Thyroid.*
32. BARDSWELL, N. *Laryngeal Stenosis.*
33. PATTERSON, N. *Malignant Disease of Pharynx and Tongue.*
34. HETT, G. S. (a) *Tuberculous Ulceration of the Larynx.* (b) *Laryngo-Fissure for Intrinsic Carcinoma.* (c) *Cyst of the Right Vocal Cord.*
35. TWEEDIE, A. R. *Papilloma of the Inferior Turbinal.*
36. GUTHRIE, T. *Guillotine for Enucleation of Tonsils by Sluder's Method.*
37. HORSFORD, C. *Laryngeal Stenosis.*
38. *JENKINS, G. J. *Epignathus.*
39. THOMSON, ST. C. *Tracheotomy Tube Worn for Fifty Years.*
40. WYLIE, A. *Specific Ulceration of the Tongue.*
41. POWELL, H. F., AND COLLEDGE, L. *Fixation of the Left Half of the Larynx.*
42. HILL, W. (a) *Treatment of Non-Malignant Stricture of the Gullet by Endo-Esophageal Mechanical Dilatation.* (b) *Instruments to Facilitate Per-Oral Tracheo-Bronchoscopy.*
43. MCKENZIE, D. *Bilateral Edema of the Ethmoidal Septum.*
44. HUNT, M. *Bony Growth of the Nose.*
45. *JEWESBURY, R. C., AND TOPLEY, W. W. C. *Pathologic Changes in Voluntary Muscles in General Diseases.*
46. EDMUNDS, W. *The Changes in the Central Nervous System from Thyroparathyroidectomy.*
47. MACNAUGHTON-JONES, H. *Ganglion Neuroma of the Mesentery.*
48. *LEWERS, A. H. N. *Half of a Broken Glass Catheter Removed from the Bladder.*
49. LOCKYER, C. *Uterus Removed after Utericuloplasty.*

50. *Russell, A. W. *Extraperitoneal Cæsarean Section.*
51. Lockyer, C. *Embryotomy after Version for Placenta Previa.*
52. Swayne, W. C. *The Clinical Significance of Acidosis in Pregnancy.*
53. Payne, J. L. (a) *An Unusual Case of Fracture of a Tooth.* (b) *Acute Infective Periostitis.*
54. Schilling, C. *Extraction of Teeth from a Newborn Child.*
55. Pitts, A. T. *Arrested Eruption of the Teeth.*
56. Densham, A. *A Simple Apparatus for Prevention of Laceration of the Tongue during Sleep by Spasmodic Closing of the Jaws.*
57. Gobell, D. *A Few Notes on Porcelain Work.*
58. Scott, S. *Labyrinth and Inner Tympanic Wall in Post-Suppurative Otitis Media.*
59. Grant, J. D., et al. *The Value and Significance of Hearing Tests.*
60. McKenzie, D. *The Semicircular Canals and the Sense of Position.*
61. Grant, J. D. *The Voice-Raising Test with Bárány's Noise Machine.*
62. Sharp, A. *Deafness Caused by Excessive Tea-Drinking.*
63. Davis, H. J. *Raynaud's Disease, with Vascular Disturbances in the Labyrinth.*
64. *Barling, H. G., et al. *The Surgical Treatment of Aneurysm.*

8. Fagge reports, with illustrative skiagrams, a case of ununited fracture of the ulna successfully treated by bridging the gap with a slice of bone sawn from the tibia and secured in place by Lane clamps.

38. Under the term epignathus, Jenkins describes a teratoid tumor of the nasal septum and base of the skull, in a child, occupying the cleft of a cleft palate.

45. As a result of pathologic examination of tissues from 153 cases, the authors conclude that in wasting diseases the voluntary muscles show varying degrees of histologic change bearing little relation to the actual degree of wasting present. In acute general diseases, muscle changes are extremely slight.

48. This report of Lewers' experience emphasizes the danger of glass catheters and the inadvisability of their employment.

50. Russell reports seven successful cases of extra-peritoneal Cæsarean section.

64. Barling describes the obliterative, reconstructive and restorative types of endo-aneurysmorrhaphy suggested by Matas, and collects from British literature sixteen cases treated by one or other of these methods. In the symposium of discussion various other methods are reviewed and cases cited. [R. M. G.]

Obituary.

JESSE BURDETTE HYLAND, M.D.

Dr. Jesse Burdette Hyland, who died of cerebral hemorrhage on July 11 at Keene, N. H., was born in Arlington, Vt., on June 18, 1862. After obtaining his preliminary education in Keene, he entered the Harvard Medical School, from which he received the degree of M.D. in 1884. He first settled at Palmer, Mass., but soon returned to Keene, where he continued active in the practice of medicine until the day of his death. He was a member of the American Medical Association, of the New Hampshire Medical Society, and of the Cheshire Medical Society.

Dr. Hyland was appointed a member of the Staff of the Elliott City Hospital, June 8, 1892. He was a most valued member to his associates, who often looked to him for advice. He was instructor in obstetrics in the Training School for Nurses during this long period, and always had the welfare of his students constantly in his mind. He was a most loyal friend to the hospital. Dr. Hyland was a member of the Pension Examining Board for Cheshire County.

Dr. Hyland's relations to his patients were inspiring; no matter how poor or what their condition of life he gave them the best he had. He is survived by his widow, by two daughters, and by one son.

Miscellany.

USE OF DRUGS BY CHILDREN.

At a session of the recent convention of the National Educational Association, held lately in Chicago, Dr. Harvey W. Wiley made an address on "Problems in Education Related to Public Health." In the course of his remarks he is reported to have spoken as follows with regard to the use of drugs by children: —

"One great object in education should be the development of a sound intellectual training in connection with a sound physical body. The increasing tendency to insanity, neurasthenia and kindred diseases is awakening a marked interest among all those who are laboring for the public health. While we see a diminution in certain contagious and infectious diseases, such as yellow fever, smallpox, typhoid fever and tuberculosis, there seems to be an increasing number of so-called nervous diseases, including mental irritability, physical weakness and general inability to perform the duties of life, whether of a mental or a physical character. Teachers should have their attention called to some of the prevailing conditions which tend to produce this increase in nervous troubles. It is not my purpose here to speak of the necessity of the ordinary principles of sanitation, pure air, good food, abundant exercise and freedom from over-exertion of the intellectual faculties. Rather I would call attention to some of the factors which are little talked about, much neglected and not generally understood.

"I wish to confine myself specifically to the prevalence of the drug habit among school-children. Either through neglect, carelessness or consent of parents and teachers, thousands of school-children are becoming addicted to drug habits. There is no nation in which the children take something as often as they do in this country. Every household has its cupboard with so-called household remedies, consisting mostly of synthetic preparations of quack medicines. Each of these is advertised to be good for almost every disease which may befall the child. No matter what ails him, the all-potent bottle or pill box contains the sovereign remedy.

"Very often these are dangerous drugs, habit-forming drugs, depressing drugs. The age of opium and its compounds, acetanilid, phenacetin, antipyrine and chloroform has not passed by in the realm of infant preparations. The country

is still flooded with these deadly preparations, none of which should ever be given to children except in rare cases, and then only under the personal supervision of a competent physician.

"In addition to these drugs, many children are allowed to drink tea and coffee, and thus take into their systems an alkaloid, caffein, which has the tendency to take away the sense of fatigue, stimulate the heart's action, and, in general, to urge the child forward to greater physical and mental activity than he should be called upon to endure. In the normal child the brain and the body give timely notice of fatigue; in the abnormal child, fed partly on tea and coffee, these danger signals are struck down, and the child has no sense either of physical or mental fatigue. Thus he keeps on working when, if Nature had her way, he should be resting. Physicians and teachers should combine to urge upon parents the desirability of not allowing school-children to use these drugs."

CENTENARIANS AND SUICIDE.

A RECENT issue of the London *Chronicle* states that in 1888 a Hungarian, then 84 years old, jumped from the suspension bridge at Budapest into the Danube. On being rescued, he explained that he had attempted suicide because he had become too decrepit to continue to support his parents, aged 110 and 115 respectively. It is said that investigation proved his statement true. The maximum age for a suicide is believed to be that of Mr. Bulan, a Russian, who in 1892 killed himself at the reputed age of 106. Whatever the circumstances of these persons, their attitude towards life seems not be have been so wholesome as that of George Clinton Payne, of Newark, N. J., who, on July 10, after celebrating the supposed centennial anniversary of his birth, is alleged to have returned to work, stating that he owed his longevity and good health to hard work and fresh air and that he was good for 20 years more.

Correspondence.

THE SELF-DEFENSE OF AN ANTI-VIVISECTIONIST.

Mr. Editor: There has been sent to me recently an article appearing in the two numbers of your JOURNAL on May 2 and May 9, which is written by Dr. W. W. Keen and is entitled, "The Influence of Antivivisection on Character." In this communication several anti-vivisectionists are accused of misrepresentation and as I am one of those most often accused, it seems both proper and fitting that I should send to you and beg you to publish an answer made in my own defense. That Dr. Keen has adopted our tactics and made use of our own method of warfare in basing his article upon the declaration that antivivisection, or in other words, opposition to cruelty practiced upon the dumb and defenseless of God's creatures, has an injurious effect upon the character, is rather striking. I suspect that he can find very little ground upon which to found his charge. The letters which he instances as having received from hysterical women, although I consider them extremely objectionable as far as language is concerned, seem to me (with the exception of two or three that are positively wicked), rather the ebullitions of warm and generous natures, the expressions of sympathy with the ill-treated and helpless, than as any sign of a 'debased or corrupted character. The proof that I can bring, on the other hand, of demoralization, amongst those who practice experimentation upon animals, is not difficult to find. In the examination of witnesses before the first Royal Commission in England, appointed in 1875 for the purpose of investigating the subject of vivisection, Dr. Emanuel Klein, a German, in speaking of his experiments said that cats were so troublesome on account of their scratching, he gave them chloroform. He was asked by the presiding officer if it was merely on account of the cats scratching that he used chloroform, or if he had not some regard for the sufferings of the animals, he replied, "None at all," and added that such was the case, he believed, with most of the vivisectors on the Continent. One of the witnesses examined before the second Royal Commission, which made its report a few weeks ago, was Dr. Pembrey, who when asked if he justified the infliction of unnecessary pain upon an animal, replied, "I consider that it is prefectly right to inflict pain upon an animal," but, "not unnecessarily," he added. As he chose, however, to make himself the judge of what was necessary and what was not, and as he had a peculiar theory that when an animal was bound down upon its back it went into a hypnotic condition and did not suffer any pain, his sentiments did not please the commission and in their final report the members say: "It appears to us that to grant a license or certificate to any person holding such views as those formerly expressed by Dr. Klein and as those entertained by Dr. Pembrey, is calculated to create serious misgiving in the minds of the public." What influence, but that of vivisection, had hardened these men, particularly Dr. Klein, so that they regarded an animal as they would a block of wood or stone with no sensation of compassion for its sufferings?

Several visitors to Alfort some years ago, before the system of teaching was somewhat modified, tell of the atrocious torments inflicted upon animals at the Veterinary College. One account by Baron Von Weber is given of a little bay mare worn out in the service of man, one of eight on a certain operation day, having unfortunately retained life throughout the fiendish ordeal, and looking like nothing ever made by the hand of God, with loins ripped open, skin torn and ploughed by red-hot irons, riddled by Setons, tendons severed, hoofless, sightless and defenseless, was exultingly reared, *amid the laughter of the students*, on her bleeding feet, when gasping for breath and dying, to show what dexterity had done to complete the work before death took place, and all this torture was inflicted without any anesthetic!"

What progress in medicine or surgery could compensate for the entire absence of the God-given sentiment of pity, one of the noblest emotions of our nature, in those callous hearts?

Dr. Henry J. Bigelow, the great surgeon, in an article upon vivisection written just before his death, says: "There can be no question that the practice of vivisection hardens the sensibility of the operator, and begets indifference to the infliction of pain, as well as great carelessness in judging of its severity." I leave it then to my readers to judge whether the practice of experimentation upon animals, or the opposition to it, even if expressed in an unjustifiably strong manner, is most likely to injure the character.

Dr. Keen in speaking of the administration of anesthetics makes a calculation and then says: "In other words, only twenty-six animals out of one thousand could by any possibility have suffered any pain and very few of these any serious pain." He makes not the slightest reference to the long string of agonizing experiments made without any anesthetics, such as the different kinds of starving experiments, to taking dogs when starving and placing them in ice cold water and afterwards into a very cold room — drowning experiments,* suffering them to lose consciousness with all the pain of drowning, and then resuscitating them with all the accompanying suf-

* Some of these dogs were anesthetized.

fering which is said to be worse than the drowning, the experiments of fatigue where the poor dogs are made to work in a tread mill without any cessation until they drop dead, in order to obtain a "fatigue serum," the experiments to see if hydrophobia can be induced in dogs by placing food directly before them when they are starving and preventing them from partaking of it, the somewhat similar experiments of Dr. Pavlow for obtaining gastric juice and all the experiments on the nervous system which cannot be undertaken if the animal is under an anesthetic. These are some of the things done while the poor victims are perfectly conscious. Still more remarkable, he makes no allusion to the suffering endured by animals when recovering from an operation performed under anesthesia, after the influence of the anesthetic has passed off. The accounts that we receive from eye witnesses of this are perfectly harrowing.

We give from the evidence of **Mrs. Cook**, chairman of the executive committee of the Parliamentary Association for the Abolition of Vivisection before the Royal Commission, an example of great suffering endured by animals, kept alive after the initial operation performed under an anesthetic.

Some very cruel experiments on dogs were made by Dr. Vaughan Harley and Dr. Wakelin Barret in the June number of the *Journal of Physiology* for the year 1903. These were undertaken with the object of studying the formation of gallstones. The preliminary operation was thus performed: — The dog was put under ether. A wound two or three inches long was made in the abdomen from the end of the breastbone downwards. The gall bladder was pulled through this wound and squeezed, so as to empty it of the bile that might be in it. It was then sewn to the raw edges of the wound and in its turn cut open. Through this opening gallstones were pushed into the gall bladder, some of them the size of a hazel nut. Then the wound in the gall bladder was sewn up, and afterwards the wound in the abdomen. All this must have taken a certain interval and it is not at all probable that the dog was kept so deeply under ether all the time as to feel no pain. But even admitting that it was so, the preliminary operation itself is but a very small part of the suffering a dog so treated would have to go through. In the first place there is the pain and fever and thirst inseparable from the healing of abdominal wounds, and after that there is the pain caused by the presence of gallstones in the gall bladder. Most people know either by personal experience or from hearsay by their friends that the presence of gallstones causes the most violent pain. It is generally considered, I believe, the most violent pain known.

I have now given a sample of some of the worst experiments in Great Britain and the suffering attended upon them; but the cruelty is not confined to England, we have a vast amount of it here, particularly as a result of the barbarous operations in the Rockefeller Institute. A young man named Dutton, an employe of the institute, made a sworn statement before a magistrate of some of the things he saw there, which affidavit was published in the New York *Herald*. A few of the last revolting things that he told are here given. He says of the dogs: "The dogs are very patient after the operation, they never even let out a whimper. They look at you in such a way — almost human."

"One-half the scalp and ear was taken off, and the other scalp and ear was put on, and then the head was bandaged, so that only the eyes and mouth showed. It was left like that from eight to sixteen days, and then when he would open it up there was a whole nest of abscesses. Each one of the stitches had an abscess around it. The animals didn't eat or drink. Or if they did try they took scarcely anything. Not if I tried to do it could I exaggerate the looks of that nest of abscesses. It was a dreadful sight. One could never forget that nest of abscesses."

For a week or two after the *Herald* made so much talk about the institute they had an inexperienced man to look after the dogs at night to keep them still, and their way of keeping them still was to whip them.

In view of what I have here related, both of England and this country, is it not wonderful that Dr. Keen should write so long an article dealing with the status of vivisection at the present time and not make an allusion even to the terrible sufferings of animals in experimentation, although anesthetized in the initial operation. Before closing I think that I should answer the charges made by him against myself, in several instances, of incorrect or illogical statements. He takes exception to my argument that deductions made from experiments upon animals are not valuable unless they can be also tried upon human beings, and quotes a sentence of mine in an article written some time ago, which is as follows: "I assert, on the contrary, that in the majority of cases they should be tested first upon man, or not tested at all, because no important deductions can be drawn with any degree of certainty from experiments upon animals, since in some inexplicable way their construction is so different from that of man." If it is not correct that the construction of the lower animals differs in some aspects materially from that of man, why did Sir Francis Treves say after his experiments made upon dogs on the Continent, that when he began to operate upon man, such are the differences between the human and the canine bowel, he had everything to unlearn and that his experiments had done little but unfit him to deal with the human intestine; and why did Lawson Tait write that after many experiments in cutting and then uniting the arteries of dogs, he thought he had made a great discovery until he tried his new method of uniting the end of an artery of a man and then found it was an entire failure on account of a slight difference in the construction of the arteries of a man and those of a dog? If the makeup of an animal is not very different in some respects from that of a man, why do some drugs affect the two classes so differently, as is well known to be the case?

Dr. Starling, in his examination before the Royal Commission, said that no matter how much animals were experimented upon, the final experiment (that which we understand would be of great value) must always be made upon man. The second charge brought against me by Dr. Keen is that in the same article I advocated "human vivisection" because I suggested that in order to find out the effects of the poison of snakebits in India and to search for an antidote, the experimenters should go out there, where they could try with certainty antidotes upon the natives who had been bitten, since they would surely die, so it was said, and a remedy administered to them would be so much more valuable owing to the fact that drugs affect so differently men and animals, and remedies tried upon snakes might not help human beings at all. It does not seem to me that this is a cruel suggestion, as my only object in it was to benefit the poor natives who die by the thousand every year from the bite of the cobra and other deadly snakes.

Dr. Keen goes on to criticize severely a senator of the United States who said: "It would be much better to dissect men alive occasionally for the general welfare because the attendant phenomena and demonstrations of the victims, being of our own particular form of animal, would be far more valuable than the result of our observation upon the physical structure illustrated in the agonies unto death of the helpless creatures around us."

This was in a pamphlet entitled "Vivisection in America," by Frances Power Cobbe and Benjamin Bryan, and was freely distributed in the United States. This is very remarkable to me as in all my antivivisection work, I never heard of such a proposition, but such a one has come from the vivisectors themselves and their advocates over and over again. In one session of the legislature in Ohio, a few years ago, two bills were introduced, asking that criminals sentenced to death instead of being executed in the usual way, might be handed over to the doctors for experimentation.

The next charge against me is that I quoted Sir Frederick Treves' well-known speech, saying that experiments upon dogs, so far from aiding him had unfitted him for dealing with the human bowel, without saying that he was, nevertheless, in favor of vivisection. I am most particular to avoid, not only falsehood, but even exaggeration in everything written by me or published in our organ, the *Journal of Zoöphily*. I have again and again refused communications because they spoke of facts in connection with vivisection which I thought exaggerated, or were too vituperative in their language.

When I first heard of the speech of Sir Frederick Treves,

in connection with his experimentation upon dogs, I was greatly pleased as it furnished another argument for our contention, that vivisection is misleading, and I hastened to allude to it, either in an address that I was making or an article I was writing, I cannot remember which. But what I do remember is that a journal in the West, I think, called me to account for not mentioning that Sir Frederick Treves, despite his declaration upon his return from the Continent, was strongly in favor of vivisection. I ascertained this to be true and from that day to this I have never omitted in speaking or writing, when alluding to that speech of his, to add that it must not be concluded that he is an antivivisectionist, for he has expressly declared that he is not. I do not admit that in a letter of mine reprinted from the *North American* of April 12, 1909, I imply that Sir Frederick Treves is an opponent of vivisection, and the other occasion where Dr. Keen asserts in the number of our *Journal* for March, 1911 (p. 177) is published the same old quotation. I can only say that I did not presume to edit Dr. Snow's speech, the article to which reference is made. To the fourth and last charge I plead guilty, that is to saying in my editorial in our *Journal* for April, 1910, that Dr. Wentworth, of Boston, experimented upon between forty and fifty little children in the Children's Hospital in Boston, performing upon them what is called the "lumbar puncture," and that they all died. I was careless in saying that they all died, and trusted to my memory, thinking I remembered all the facts in the case. The article that was published at the time these experiments were made known in the medical journal, the *Philadelphia Polyclinic*, severely condemnatory of Dr. Wentworth, made such an impression upon me that I unconsciously exaggerated their apparent enormity in alluding to them several years later.

Dr. Keen makes constant mention of mistakes and misstatements that prominent antivivisectionists have made. What defence has he for his own misstatements? He has published in different magazines, though corrected over and over again, that through Dr. Flexner's serum for cerebrospinal meningitis, the mortality from that disease has been reduced from 75% to 20%. My friends and I obtained the statistics from the Board of Health in New York some years after the claim was made of such benefit from the use of Dr. Flexner's serum and found that the mortality was much increased instead of being diminished, amounting in fact to over 90%.

Toward the end of his communication, Dr. Keen gives a list of what he calls "The Achievements of Friends of Research." He is fond of gathering together a collection of benefits that he says have been gained by experiments upon animals, but unfortunately for his reputation for reliability, he cannot prove the certainty of his vaunted triumphs.

I have already shown that the mortality from cerebrospinal meningitis, instead of being lessened by the discovery of Dr. Flexner's serum, increased for several years. In maternity cases, also, Dr. Harrigan has shown that Dr. Keen's claim to such beneficial results is a mistaken one.

In regard to Malta fever, it is not the friends of research who have abolished it, but the friends of cleanliness and purity who have insisted upon having the harbor which was a hot bed of disease, cleaned out, and other sanitary measures enforced. Dr. Keen claims that they have abolished yellow fever, but we are told that it is still flourishing in a number of places in South America, Central America and Mexico.

I shall have to cease attempting to demolish any more of Dr. Keen's claims to great benefits arising from experimentation, as it would make my letter too long. After having finished this extensive list, he says triumphantly under the caption of "The Achievements of the Foes of Research," "Not a single human life has been saved by their efforts." I must beg to differ from him. In an article written by Lawson Tait, after he was converted to antivivisection, he stated that the physiologists on the Continent had discovered in their researches a method of treating women in certain diseases which would have caused the death of a large number, had he not exposed its dangers. He speaks of it as another of the mistakes which are likely to be made in vivisectional research.

In the report of the Royal Commission which has lately been made public, the members do not seem so enthusiastic in their defence of vivisection as we might expect, considering the makeup of the commission and that on it there were three vivisectors, and several others supposed to be friendly to experimentation upon animals. Dr. George Wilson, of whom I have spoken, when dealing with the question of "Progress and Results," says, "I feel bound to state that I have been far more impressed with the fallacies and failures which have attended this method of research than with the successful results which are claimed." That this should come from one who says that he is not an antivivisectionist is a strong argument in our favor. The doubt expressed of its very great efficacy makes it seem all the more remarkable that such a man and others like him should uphold a method so repugnant to the moral sense of a large portion of the community and sometimes even of those who have been engaged in it, as in the case of Sir Charles Bell, who before his death, it is said, bitterly regretted the experiments he had performed. The sentiment of many is beautifully expressed by the Bishop of Durham when he said: "I find it absolutely inconceivable that God should have so arranged the avenues of knowledge that we can attain to truths which it is His will we should master only through the unutterable agonies of beings which trust in us."

CAROLINE EARLE WHITE.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 13, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	12	3
Chicago	—	—	Waltham	9	2
Philadelphia	—	—	Brookline	2	—
St. Louis	—	—	Chicopee	12	10
Baltimore	—	—	Gloucester	2	—
Cleveland	—	—	Medford	7	—
Buffalo	—	—	North Adams	4	1
Pittsburg	—	—	Northampton	8	1
Cincinnati	—	—	Beverly	4	1
Milwaukee	—	—	Revere	1	—
Washington	—	—	Leominster	8	2
Providence	—	—	Attleboro	1	—
Boston	248	71	Westfield	4	2
Worcester	62	26	Peabody	3	—
Fall River	49	26	Melrose	2	—
Lowell	49	24	Woburn	2	1
Cambridge	23	6	Newburyport	7	1
New Bedford	26	16	Gardner	2	1
Lynn	16	2	Marlboro	5	1
Springfield	33	11	Clinton	4	1
Lawrence	32	20	Milford	5	1
Somerville	22	4	Adams	2	1
Holyoke	21	9	Framingham	6	—
Brockton	11	4	Weymouth	—	—
Malden	9	3	Watertown	4	2
Haverhill	13	2	Southbridge	1	—
Salem	15	6	Plymouth	—	—
Newton	10	4	Webster	4	1
Fitchburg	7	4	Methuen	—	—
Taunton	19	5	Wakefield	—	—
Everett	8	1	Arlington	—	—
Quincy	—	—	Greenfield	2	—
Chelsea	13	1	Winthrop	2	—

APPOINTMENTS.

UNIVERSITY OF PENNSYLVANIA. — *Dr. William Pepper*, professor of clinical pathology, has been appointed dean of the medical department.

SYRACUSE UNIVERSITY MEDICAL SCHOOL. — *Dr. Leverett Dale Bristol*, of St. Paul, Minn., has been appointed assistant professor of bacteriology; *Dr. Earl V. Sweet*, of Phoenix, N. Y., instructor in histology; *Dr. Albert G. Swift*, of New York City, instructor in surgery; and *Dr. John W. Cox*, of Syracuse, instructor in pathology.

Report from London on July 20 states that *Dr. W. H. Aogbom*, of the British Imperial Cancer Research Fund, has been appointed first assistant under the Crocker Fund for the investigation of Cancer, in New York.

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Original Articles.

INSTITUTIONS FOR THE PREVENTION AND CURE OF TUBERCULOSIS AS ELEMENTS IN THE SOCIAL DEFENSE AGAINST THE DISEASE.*

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Upon definiteness of knowledge depends definiteness of action, or, indeed, any intelligent action at all. It is to the illustrious Koch (*nomen memorabile et illustrissime*), whose presence and profound knowledge of tuberculosis had rendered former Congresses conspicuous, and whom we miss and mourn to-day, that we owe this definite knowledge. Through his incomparable discovery all the many and varied efforts for the prevention and cure of tuberculosis have had their inception. With the key of knowledge — the cause of tuberculosis — which he gave us, we have unlocked the doors, so long barred, and allowed human endeavor, so long inactive or ineffective through ignorance of the cause, to intelligently and hopefully act in the direction of prevention and cure. We have seen these efforts advance with constantly increasing momentum until they have become world-wide. So much success has already been achieved that we look into the not dim future with confident assurance that eventually tuberculosis will be removed from the list of the world's great plagues.

At first these efforts were largely confined to the physician, the bacteriologist or the sanitarian; gradually, however, as time went on, it became more and more apparent that the whole body politic was concerned, and that the antituberculosis warfare was a people's fight. As the disease was universal, so must the forces arrayed against it be universal, and every one must take part in the conflict. "Tuberculosis is a social disease," was the cry, "and therefore the defense must be social." As one of my own countrymen (Mr. Edward F. McSweeney, chairman of the Board of Trustees, Boston Consumptives' Hospital) has well said in a recent address at a meeting of the National Tuberculosis Association of the United States, "In the fight against tuberculosis the charity worker and the doctor should occupy the position of the nurse on the battlefield, caring for the wounded who fall in the fight. The generals in this army fighting against tuberculosis should be the great commercial and business organizations which will approach this question from an economic standpoint, and reorganize the work so that it shall not be confined to present relief, but aimed at future prevention." Moreover, as, after numberless fruitless attempts, no specific for the disease was discovered, it was recognized that, both in prevention and cure, the raising of the body resistance to and the maintaining of it at the highest standard and the avoidance of all those influences which favored the development of the bacillus through lowering this resistance played a part only second to that directed against the infecting germ itself; hence all measures directed towards improving personal and community hygiene and raising the level of healthful existence of the masses were preventive measures and pertained largely to society at large to inaugurate and render effective. In this double sense, therefore, it devolves upon society, — the people, — both privately and in their official capacity, to carry on the defensive warfare against tuberculosis; guided, advised and directed by the trained expert in tuberculosis, the sanitarian, the bacteriologist and the pathologist, and, as well, by the administrator, the legislator and the man of executive ability.

It will be seen, then, that all institutions which have to do with the public health are institutions of prevention in this broad sense. Such, for example, are national, state and municipal boards of health, with their laboratories and many instrumentalities for preserving and promoting health. Such, also, are factory and tenement house inspection; departments of street cleaning, water and sewerage boards; associations or official bodies which provide public baths, playgrounds for city children, and other wholesome means of recreation; school inspectors, and many other institutions or associations which will occur to one, and which have for their object the amelioration of the public health.

The institutions or organizations, however, which, in my opinion, are more directly and intimately concerned with the prevention and cure of tuberculosis, and which exercise a definite stimulating and educative influence upon society in its defense against the disease, are comprised in the following enumeration: (1) The sanatorium; (2) the tuberculosis dispensary; (3) the "tuberculosis class," first instituted by Dr. Pratt, of Boston, Mass., U. S. A.; (4) the open-air school; (5) the day and night camp; (6) the "preventorium," so-called; (7) anti-tuberculosis associations or leagues, national or local, some of which are purely sources of education by means of the tuberculosis exhibition, lectures, literature, the public press, etc., while others undertake creative work, such as the inauguration and maintenance of sanatoria, dispensaries, hospitals for advanced cases, visiting nurses, etc.; (8) compulsory instruction upon tuberculosis in the public school, such as is now required in the public schools of Massachusetts, and doubtless in other countries.

The first specific institutional means employed to *treat* tuberculosis with the aim of *curing* it was the modern open-air sanatorium, first instituted and developed some fifty or more years ago by the renowned Brehmer, whose prophetic vision and deep conviction gave him the courage to demonstrate to the world the truths of his contention in his establishment at Goebersdorf. Equally famous was Falkenstein Sanatorium, the result, likewise, of Brehmer's teaching upon his gifted pupil Dettweiler. It was the latter who enunciated and proved the fact that tuberculosis could be cured in any climate.

* Read before the Septième Congrès International Contre La Tuberculose, Section 1, Rome, April 14–20, 1912.

Since the day of these brave pioneers, the sanatorium method of applying the open-air cure, with all that it involves, has become, as we all know, the established method of treating the disease in the larger number of cases, and such institutions, both public and private, have sprung up all over the civilized world. In the United States a large number of the component states have one or more state sanatoria already in existence, established and maintained at public expense; and in the near future, probably, every state will possess such an institution. The influence of the sanatorium upon the public is, in the main, twofold, it seems to me. First; it teaches the supreme importance of the early detection of the disease, for it is seen how curable tuberculosis becomes when properly treated in the early stages; hence the public is becoming alert to the possibilities of tuberculosis whenever any suspicious symptoms are present, and is turning to the sanatorium at a timely period for treatment. This in itself constitutes an important skirmish line of social defense. Second: The sanatorium is a great public teacher through the apostleship of those who have been cured through its instrumentality. As they return to their homes they show by precept and example the value of fresh air, rest, proper and sufficient food, and, in general, of right hygienic living in personal and social life. An incident occurring in my own state of Massachusetts well illustrates this influence.

A patient who had been treated and cured at our state sanatorium became a distributor of milk after his return, as this occupation afforded him an outdoor life. It was soon observed by neighbors that all those residing on this man's milk route had their windows open at night, having been taught by him the importance of fresh air in the sleeping room, he by his own experience having realized its value.

Again, the danger from the tuberculosis sputum and the safe method of its disposal is another of the lessons taught from the experience book of the discharged sanatorium inmate. Still, again, he is quick to observe any of the suspicious and more evident signs of the disease in others and gives a timely warning. The value of such personal influence and teaching, the result of one's own experience, can hardly be overestimated, as has been attested over and over again by very many examples.

As every sanatorium patient is removed from his own immediate environment — his family — and isolated, in each such case a possible source of infection is obviated, which is another element in the social defense. This, however, is not so important a factor as the isolation of the far-advanced cases in consumptive hospitals, which, as all phthisiotherapeutists are now agreed, I think, is the *one* most *effective* means of preventing and diminishing the spread of the disease; for, as Newsholme, of England, has so conclusively shown, the diminution of the disease is in direct ratio to the isolation of the advanced consumptive, — the more the isolation, the less the disease. No preventive measure is so purely prophylactic as this. The public has become pretty well educated up to this fact, and it is now especially turning its attention and efforts to the provision of consumptive hospitals near large centers of population; homes, or separate wards in general hospitals for the purpose of segregating dangerous consumptives in the incurable advanced stages. In my own city of Boston the municipality has expended large sums of money in the establishment of an extensive hospital for the isolation and care of such cases. One of the proofs adduced as to its value as a means of prevention was the fact that a death occurred every day.

The tuberculosis dispensary is primarily an institution for prevention, and, as Phillips, of Edinburgh, so aptly designated it, a "clearing house" whence provision is made for its patients in sanatorium, hospital, or otherwise. In doing this, however, it is playing the rôle of prevention by removing the consumptive from his environment and thus avoiding the risk of spreading the infection. Only in a secondary degree is its function, in my opinion, one of treatment, because it cannot continuously control its patients, except, perhaps, through the medium of the tuberculosis class, to which I shall presently refer.

The most important and valuable part of the preventive work of the dispensary is done through the "visitor" or "visiting nurse," who may either be a "trained nurse," or what is called in America the "social worker," one who has been trained in the school of social service and, in addition, has had experience in tuberculosis work. Such a nurse, or "social worker," visits the home of every patient who is found to be tuberculous, and instructs the family as to the safe disposal of the sputum and the care to be exercised in order to avoid contracting the disease. She also, by precept and example, inculcates the principles of hygiene. Thus in thousands of homes of the poor, personal instruction is given in the prevention of tuberculosis and in rules of living so as to maintain one's normal resistance to disease. Aid, in food, rent, clothing, etc., is often rendered when considered necessary by the visitor, either by the dispensary directly or through a co-operating charity. Such service as this of the visitor carried into the home of the tuberculous patient is of inestimable value and is one of the most formidable weapons in the social defense against the disease. If the tuberculous patient cannot for any reason, or will not, leave his home for treatment, and has to be treated at home, then the dispensary nurse exercises constant supervision over him and his home, the dispensary physician, of course, directing the treatment.

Another preventive measure which the dispensary can or may fulfill is the periodic examination and supervision of those whose disease has been arrested or cured, particularly those who have returned from the sanatorium. It is a common experience that many such relapse after a return to their former environment and occupation. By timely examination and advice such untoward results may not infrequently be

averted, and the effort and expense incurred in the sanatorium treatment be recompensed by a continued economic integrity.

The "tuberculosis class" is a comparatively new departure in the method of applying the open-air cure, and is becoming increasingly popular in the United States, though, of necessity, it is limited in its application. It was the happy conception of Dr. Pratt, of Boston. It consists in the treatment of a few patients, not more than twenty-five at the maximum, at their homes, all coming together in a sort of "class" each week; hence the name "tuberculosis class." The plan of treatment for each patient is carefully arranged by the physician in charge; and the visiting nurse, who is attached to each class, periodically visits the home and assures herself that the treatment is being properly and faithfully executed. Every patient is obliged to give up his occupation and devote his entire time to the "cure." Whatever is needed for this that the patient cannot supply, such as food, clothing or equipment for the outdoor life, is furnished from funds placed at the disposal of the class, generally by a religious or some charitable association. Furthermore, each patient is provided with a record book in which he is required to note his temperature, weight, number of hours spent out of doors, quantity and kind of food taken, and other details of his daily life. Once a week all the members of the class meet together with the physician, who examines and discusses the record of each case, and gives such further instructions as the conditions require. Tuberculin is also given in suitable cases.

It is needless to say that the personality of the physician and his enthusiasm have much to do with the success of such a class. Under an inspiring leader the results have been strikingly successful. Dr. Pratt has shown a very considerable number of cures or arrests, with ability to resume and continue work, and this was accomplished in a thickly settled city. Such classes, though limited in scope, are not only a successful method of conducting the cure at home, but at the same time serve as a valuable medium for inculcating the lessons of fresh air, proper hygiene and the avoidance of infection in the respective families of the members of the class, and thus they become an important preventive influence, adding another line of defense against the disease.

The open-air school: It has become increasingly evident, as Behring, Calmette and many others have shown, that tuberculosis in children is very frequent, often latent or "closed" until favoring circumstances in adult life develop open disease. If children in this latent or inactive stage, or when manifesting only suspicious symptoms, can be properly treated, a later active tubercular outbreak may almost surely be averted. To accomplish this the "open-air school" has been developed and has at once demonstrated its value.

During the usual school hours the children are constantly in the open air, both during the milder and more severe seasons of the year. They are properly clothed to withstand the cold, are furnished with abundant and nutritious food, and are given periods of rest either in reclining chairs, or lying flat on a mattress placed on the floor. At the same time they attend, during the intervals of treatment, to their school exercises and thus both the "cure" and their education are simultaneously carried on. It is, of course, understood that children with active disease, i. e., open tuberculosis, must receive essentially the same treatment as adults in a regular sanatorium adapted to their age and condition.

For anemic, debilitated children, with apparently little resisting power, open-air school rooms in the ordinary school buildings are being equipped in my own city of Boston, and I daresay in many other places, an evident valuable preventive measure, especially so as it is so difficult in many cases to make a positive diagnosis of latent tuberculosis in the child. As the safeguarding of the health of the child means the preservation of the adult, it is obvious that the open-air school and the open-air schoolroom are precious protective measures of the first importance, and, consequently, constitute still another barrier in the social defense against the disease. These open-air schools and rooms have had still another important influence in the protection of the child's health, namely, that of impressing upon the public and the school authorities the value of adequate ventilation and fresh air in all school buildings. If an abundance of fresh air is so beneficial for the tuberculous and anemic school child, it is equally so for the well one in order that he maintain his vigor of mind and body and more easily accomplish his tasks. Architects of school buildings are now having their attention directed to this important subject. The same reasoning also applies to the furnishing of lunches to underfed school children either through private or public instrumentality.

Day and night camps: The day camp, now so generally popular, is not, in my opinion, destined to become a permanent therapeutic measure in conducting the "cure." At present it serves as a temporary and, indeed, an important stopgap, while sanatoria and consumptive hospitals are increasing to such an extent that eventually they will be able to accommodate in one or the other institution such cases as now go to the day camp, and afford continuous treatment in place of the half treatment of the latter. It is to be admitted, however, that many economic cures have been achieved by this means; while, in other cases, those who at first were unsuitable for the sanatorium on account of the extent or activity of the disease have so far improved as to become proper subjects for sanatorium treatment. On the other hand, the day camp, with its visiting nurse, which all such institutions should have, has performed a service similar to that of the dispensary in the preventive and hygienic education of the families with whom it has been brought into contact; and from this point of view it becomes a prophylactic measure

of no mean value, still further strengthening the social defense.

The "night camp," as its name implies, affords open-air conditions of sleeping, either for cases of arrested tuberculosis who pursue their occupation by day in the nearby city, or for cases still unarrested but who are able, or, from necessity are compelled to work by day. Such camps are situated preferably in the neighborhood of the city so as to be easily accessible and yet where comparatively pure air is obtainable. The especial value of the night camp is the opportunity it affords of partially following open-air conditions of living and thus maintaining the cure or arrest obtained in the sanatorium or elsewhere. Its application to the tuberculous individual is similar to that of the day camp. The occupants of the night camp receive there their evening and morning meal. In the night camp under the auspices of the Boston Tuberculosis Association we have found difficulty in persuading cured sanatorium patients to avail themselves of this opportunity of continuing their open-air life. After the isolation and régime of the sanatorium they apparently seem disinclined to further submit themselves to anything resembling institutional restraint. Others may not have experienced this difficulty. The especial lesson of the night camp to the public at large is the fact that a cured or arrested case of tuberculosis is only sure of maintaining the permanence of the cure by governing his future life by the same principles of open-air and hygienic living as were efficient in producing the cure; and, secondly, that night air is as good and often better than day air, and an abundance of it is essential to the maintenance of good health.

The "preventorium" is described by its suggestive name, and it was first called to my attention by a distinguished Canadian phthisiotherapeutist, Dr. A. J. Richer, who has established an admirable institution of the kind in the Laurentian Mountains of Canada. Persons of depressed vitality from overwork or other debilitating causes, such as factory or shop girls (many of whom might be called pretubercular in lieu of a better name), are here afforded fresh country air, rest and nourishing food and thus restored to health and vigor. The "preventorium" is a pure and simple institution of *prevention*, preventing the development of the disease in many in whom it would inevitably occur were it not for this timely aid. Its value in the social defense is obvious.

Anti-tuberculosis associations are, perhaps, more peculiarly a people's movement than any other form of activity in the tuberculosis warfare. Through such organizations, society seems to find its most natural opportunity to engage in the contest against the disease, and in order that the laymen — the people of all classes — may develop the requisite interest in the object of such associations, it would seem better that they (the people) should be the principal leaders in them rather than they should be under official or professional control. The leading men in all departments of human endeavor should be enlisted in the movement, which should not be regarded as a charity, but as a great economic question, namely, how to save this great human waste caused by a preventable disease. The methods and the extent and character of the work of such associations must depend upon the conditions existing in each country or locality. In any event, their efforts and influence must be largely educative, and with education will come a demand from the people for definite progressive action which will find its fulfillment in public appropriations for consumptive hospitals, sanatoria and dispensaries, and in legislative action in the enactment of laws, such as the prohibition of indiscriminate expectoration in public places, compulsory registration of all cases of tuberculosis, the establishment of state or municipal laboratories for the free examination of suspected sputum, and others indirectly in the interest of prevention by the protection of the public health, particularly among the wage-earners, — such as laws regulating the conditions of factory work, child labor, limiting the hours of work for women, and, in brief, all such legislative control as a well-ordered country or municipality should exercise for the protection and preservation of the health of its inhabitants.

I think that it can be shown that where the tuberculosis movement has once profoundly enlisted the interest of the people as a whole, it has been directly influential in improving the living and working conditions of the masses, for it has not taken them long to realize that such improved conditions of existence are effective measures of prevention against tuberculosis, and hence all instrumentalities which protect and improve the general health have their legitimate place in the social defense against the disease.

The child of to-day becomes the man of to-morrow and enters upon the activities of his generation, which forms the dominant society of his day. Whatever lessons are impressed upon him in youth are likely to be transmuted into action when the day of responsibility and the opportunity for performance comes. Hence the value of compulsory education in the simple facts of tuberculosis in the public schools, provided such instruction is properly given whether by the teacher or a physician. Some of the modern methods of picture illustrations, such as lantern slides, photographs and moving pictures, are valuable aids in impressing the lesson. It requires no great stretch of imagination to consider such compulsory tuberculosis education as an institution of prevention in the broad interpretation of the term. At all events, it is difficult to conceive of a more wide-reaching and effective measure of social defense than such universal instruction in the public schools.

In the foregoing treatment of this subject I have chosen to consider it in its broader interpretation, namely, that not only all direct organized efforts for the prevention and cure of tuberculosis, but as well all efforts for the improvement of the public health and industrial conditions are all

a part of that great army engaged in the social defense against the disease. The longer and more deeply one contemplates tuberculosis and its exciting or predisposing causes, and the greater one's experience with the disease, the more profoundly impressed he becomes with the truth that it is a "social" disease, be it again repeated, and that all lines of defense, moral, social and industrial, as well as those directed against the specific germ itself, must co-operate in the combat against it, and form part of the impenetrable social defense. In fighting tuberculosis we are warring, at the same time, against the innumerable conditions which are inimical to the public health. In contending with one enemy we are at the same time destroying others which help to make and perpetuate the one.

In conclusion, I desire to express my deep appreciation of the honor the distinguished president of this Congress has conferred upon me in the invitation to be one of the reporters upon this subject in collaboration with the other eminent gentlemen to whom has been assigned the same theme. One of the rare pleasures to me, as it must be to all, in these International Congresses, is the feeling of brotherhood which is engendered as we meet together, all animated by the same beneficent object, — the prevention of disease. Whatever may be our political or religious faith, in whatever tongue we express our ideas or opinions, we are all united in the one great unselfish endeavor to prevent human suffering and promote human happiness. In this mutual purpose we are all brothers.

SPECIFIC TREATMENT AGAINST PULMONARY TUBERCULOSIS AND ITS COMPLICATIONS.

One Hundred Tubercular Patients Treated with Bacterins and Tuberculin.

BY JAMES A. LYON, M.D.,

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It is generally accepted that almost every tubercular case which progresses beyond the first infiltration becomes aggravated, sooner or later, by the entrance into the lesion of other pathogenic organisms which, in turn, pave the way for further assaults by the bacillus of Koch. Especially is this so in pulmonary phthisis with complications, such as involvement of the skin, glands, intestines or genito-urinary organs. For some time past, therefore, specific treatment has been administered at this institution both against the tuberculous process and the secondary infection, the appropriate bacterial vaccines being given jointly with tuberculin. Very frequently the debilitating complications have been successfully combated by the vaccines, and the relief thus given to the host from the corresponding part of its bacillary load has enabled the tuberculin to cope more effectively with the primary disease. Of the patients thus treated, one hundred have so far been discharged; forty who are still residents are not included in the series here reported, so that the conclusions are based upon final results, though so far as can be judged they apply equally well to the unfinished cases.

The culture studies were made and bacterial vaccines were prepared by Mr. Clarence V. Murphy, bacteriologist of this institution, and thanks are due him for his labor and co-operation. Usually autogenous vaccines seemed to act no better than the polyvalent vaccines made in our laboratory. In some cases where polyvalent colon vaccine did not give the desired result, a vaccine was made with better success from the bacillus coli communis found in the feces of the patients. Under staphylococcic, streptococcic or pneumococcic vaccine with tuberculin, the catarrhal symptoms due to mixed infection very frequently abate, and accidentally it was found that colon vaccine acts exceedingly well in many cases complicated with severe bronchitis, which had not responded to the usual treatment over a reasonable length of time, even though this organism could not be isolated from the sputum; severe cough and profuse expectoration very often disappeared, and moist râles cleared up after injections of colon vaccine and tuberculin alternately. The same treatment, after surgical procedure, gave excellent results in cases of ischiorectal abscess. The specific effects from this combination were also particularly apparent in cystitis and in a tubercular appendicitis resulting in breaking down of the appendix and the formation of an abdominal fecal fistula. In cases with pulmonary hemorrhage and rising temperature assuming a septic pneumonic type, polyvalent pneumococcic vaccine in many cases exerted a favorable influence. In tubercular adenitis with discharging sinuses, tuberculin alone is insufficient; the associated staphylococcic or streptococcic infection must be treated specifically also. In a girl with lupus and keratitis, tuberculin with staphylococcic vaccine produced a wholly unexpected reversal of the prognosis. Tubercular enteritis did not do well under specific treatment, nor was there much benefit from the administration of lactic acid in the form of buttermilk, as advocated by Metchnikoff. There was a decided improvement, however, in the non-tubercular cases treated with colon vaccine and lactic acid buttermilk.

Few of the patients who received specific therapy were deemed suitable for Koch's old tuberculin; most of them were advanced and showed signs of more or less toxemia. Therefore we generally used tuberculinum purum, Gabrilowitch's modification.[1] The use of this tuberculin has not been attended by severe toxic reactions despite the fact that doses rising to 300 mgm. at the last injection were administered, and even though the tuberculin was administered in cases in which Koch's old tuberculin or bacillary emulsion certainly could not have been given at all. Scarcely any of the cases in which it was resorted to appeared to be doing well under the usual

[1] Gabrilowitch: Beitr. z. Klin. d. Tuberk., vol. xix. no. 3.

sanatorium régime; rather they showed no improvement after several months' residence, and instead, a tendency to lose ground. The fact that the results in these resistant cases compare favorably with the results in the much less severe cases is thus of added significance. Moreover, the impetus toward improvement after the first few injections was in many cases so plain that it could not be ascribed to any other cause. The patients often commented on the subjective benefit, and a discontinuance of the injections was frequently followed by immediate return of cough and expectoration.

We usually began with .2 of 1 ccm. of series A of the tuberculinum purum (1:10,000 solution), so that the first dose was $\frac{1}{5000}$ mgm. of tuberculin. At intervals of a week, — sometimes three days, — we advanced the injections by .2 of 1 ccm. of this strength each time until 1 ccm. of it ($\frac{1}{1000}$ mgm. of tuberculin) was reached. Then we commenced with .2 of 1 ccm. of series B, the 1:1,000 solution, the dose thus being $\frac{1}{5}$ mgm. of tuberculin, and carried the patient through this series in the same way; and finally through C and D. In some cases we did not go beyond C (1% solution), but after reaching 1 ccm. of this strength, repeated the dose, 10 mgm. tuberculin a number of times until the patients were discharged. Others we put through D (10% solution) and repeated the final dose of 1 ccm., containing 100 mgm. of tuberculin, a number of times, and even increased the dose to 2 and 3 ccm. (200 to 300 mgm. of tuberculin). In febrile cases we gave, before series A, a dilution of 1:100,000. In all cases the dose was adjusted to the amount of response shown by the patient; and when there were signs that the focal reaction had not subsided, the following dose was either decreased or repeated without increase or a dose period skipped altogether. In the many injections given, we have never seen any injurious effect.

As to the vaccines, which were given when there seemed to be some degree of toxemia or an abundance of purulent or mucopurulent expectoration, or when there were numerous râles on quiet or deep breathing, the dosage was small. Usually we began with from two to five millions of dead cocci, and increased this amount once or twice weekly, the maximum dose being twenty-five to fifty millions. The dosage was gauged by the individual needs and no arbitrary rules followed.

The injections were made with a platinum needle sterilized in an alcoholic flame. A drop of lysol was put on the skin in the subscapular region, the injection given through it, and the lysol wiped away with an alcohol pledget. Not a single instance of any infection ever occurred.

The one hundred cases were made up as follows:

Incipient, 8. Two of these cases complicated: One ischiorectal abscess (cured); one lupus with keratitis (cured). The pulmonary process was apparently cured in 3, arrested in 2, improved in 2 and one died. Seven of the patients gained an average of $16\frac{3}{4}$ lb., the greatest individual gain being 21 lb.

Moderately advanced, 73. Twenty-nine of these complicated as follows: One alveolar abscess, tubercular (cured); two alveolar abscesses non-tubercular (one cured, one improved); one ischiorectal abscess and alveolar abscess (cured); one ischiorectal abscess and bronchopneumonia (cured); five ischiorectal abscesses (cured); one perineal abscess, tubercular (cured); one cervical adenitis, tubercular (improved); five bronchitis (three cured, one improved, one unimproved); two bronchiectasis (one improved, one unimproved); one cystitis, tubercular (cured); two enteritis, non-tubercular (cured); one enteritis, tubercular (unimproved); one pneumothorax (died); one lobar pneumonia (cured); one otitis media chronica, non-tubercular (cured); one laryngeal tuberculosis (cured); one bronchopneumonia (died); one hydropneumothorax and ischiorectal abscess (died). In the twenty-nine complicated cases of moderately advanced tuberculosis, the pulmonary process was apparently cured in 4, arrested in 11, improved in 7, unimproved in 3 and 4 died. In the 44 uncomplicated cases of tuberculosis, the pulmonary process was apparently cured in 12, arrested in 18, improved in 5, unimproved in 7 and 2 died. Of the total number of moderately advanced cases, 55 gained an average of 14.6 lb., 11 lost an average of 9.3 lb., one remained the same and 6 died. The largest net gain in one case was 50 lb.

Far advanced, 19. Complicated, 10, as follows: One mediastinal abscess (died); one ischiorectal abscess (cured); one cystitis, non-tubercular (cured); one chronic appendicitis, tubercular (unimproved); two enteritis, tubercular (unimproved); one fecal abdominal fistula, following an appendectomy (cured); one enteritis and laryngitis, tubercular (unimproved); one laryngitis, tubercular (unimproved). In these 10 complicated advanced cases, the pulmonary process was arrested in 2, improved in 3, and 5 died. In the 9 uncomplicated advanced cases the disease was arrested in one, improved in 4, unimproved in 3 and one died. Seven gained an average of 15.8 lb., 6 lost an average of 6.2 lb. and 6 died. The largest gain in one case was 29 lb.

As to sputum, tubercle bacilli were found in 86 of the 100 cases before treatment. During the last three months of residence, it was positive in the 55 of these 86 cases. Hemoptysis had occurred in 35 of the 100 cases previous to specific treatment, and occurred in only 10 of them during treatment.

The final results in these one hundred cases at the time of discharge were as follows:

	Apparently cured.	Arrested.	Improved.	Unimproved.	Died.
Complicated,	5	14	7	6	8
Uncomplicated,	14	21	11	9	5
	19	35	18	15	13

Hence 72% of all cases improved, 15% remained unimproved, and 13% died. It must be noted that we had much difficulty in holding our patients after improvement had set in, as they were drawn

from the working classes and were eager to resume their earning capacity as soon as possible; in many cases further stay would probably have resulted in additional benefit.

The foregoing summary will afford a general survey of the results of a phthisiotherapy, consisting of sanatorium methods, tuberculin and bacterins combined. The following specific instances are interesting in that they serve to show that the cases which respond to this combined treatment do so in a wholly unequivocal manner.

Case 1. M. O., girl, aged fourteen. Admitted Jan. 16, 1911, with an incipient lesion in the right apex and with lupus and tubercular keratitis. The lupus involved the left cheek, extending down to the clavicle and two small areas under both eyelids, each about 1½ inches square. There were three small ulcers on the right and two on the left cornea. Weight on admission was 90 lb. net, 5 lb. below normal. There was little cough and no expectoration, but her temperature fluctuated between 97° F. in the morning and 100° F. in the evening (taken by mouth) for about three months. Previous to admission she had been given tuberculin treatment (B. F.). On admission the administration of tuberculinum purum was added to the usual sanatorium régime and to the local treatment of the eyes and face. During the third month her temperature had returned to normal and remained so. In this period she gained 14 lb. in weight. The physical signs in her chest cleared up by June, and the corneal lesions had improved considerably. The lupus, however, remained unimproved and a stock preparation of polyvalent staphylococcic vaccine was, therefore, given in conjunction with the tuberculin. From that time the skin lesion began to clear up, and finally healed completely. On discharge, Sept. 2, 1911, the patient had gained 16½ lb., and the pulmonary, ocular and dermal tuberculous processes were apparently cured.

Case 2. E. C., housewife, aged twenty-eight, admitted Sept. 1, 1910, with moderately advanced tuberculosis. Has suffered from pulmonary trouble for more than six months. Sputum examination on admission showed the presence of tubercle bacilli, and physical examination a general infiltration throughout the right lung with moderate activity but little impairment of function; also infiltrated areas in the upper third of the left lung anteriorly, and two thirds posteriorly, with slight activity. The patient weighed 98 lb. net, having lost 8 lb., the cough was moderate and there was but very little muco-purulent expectoration. The temperature fluctuated between 97° F. in the morning and 99.4° F. (taken by mouth) in the evening for several weeks.

Under the usual treatment, her general condition improved, but the physical signs in the chest remained unchanged. On Jan. 6, 1911, four months after admission, the injections of tuberculinum purum were begun for the purpose of influencing the temperature and the physical signs. A month later the temperature had returned to normal, and the pulmonary signs cleared up during the following four months, leaving a dry process. On May 11, 1911, the patient, having gained 11 lb., and the sputum being negative after repeated examinations over a period of two months, was discharged as arrested.

Case 3. H. S., gardener, aged thirty-seven, admitted December, 1910, with far advanced tuberculosis. He gave a history of pulmonary disease extending back for eighteen years. On admission sputum was positive and physical examination showed a rather dense infiltration scattered throughout the right lung, with moderate activity and impairment of function; in the apex, signs of cavity. There were also scattered areas of infiltration throughout the left lung with slight activity, most marked in the apex. Weight on admission was 126 lb. net, 9 lb. below normal. He suffered greatly from severe cough, purulent expectoration and dyspnea. His temperature fluctuated between 97.2° A.M. and 100.7° P.M. (rectal) for several months. For the first two months and a half he lost weight steadily, but beginning with Aug. 17, he began to gain, and on Oct. 26 he weighed 149 lb. net. On that date the use of tuberculin was discontinued, as the patient had reached a dose of 100 mgm. His temperature then varied between 98° A.M. and 99.6° P.M. (rectal); his cough had practically disappeared except in the morning; he was able to do manual labor for three or four hours daily without discomfort. The quantity of sputum excreted in twenty-four hours did not change materially, but the quality changed from purulent to muco-purulent. No difference in the physical signs could be noted from month to month. During January and February, 1912, the severe cough returned, and he began to lose weight. In March, tuberculinum purum was, therefore, again administered in conjunction with polyvalent colon vaccine, alternating twice weekly. Soon his cough practically ceased and expectoration decreased, loss of weight stopped and many râles cleared up. He was discharged as arrested June 1, 1912, after a net gain of 19 lb., sputum having been found negative after seven examinations, and he is now working eight hours a day at this institution.

The conclusions which we have drawn from our experiences are —

1. Mixed infection is usually present in progressive pulmonary tuberculosis and its complications. Therefore the use of appropriate vaccines is essential, either before the administration of tuberculin or conjointly with the latter. In many catarrhal cases great benefit is derived from polyvalent colon vaccine or, where this fails, an autogenous one made from the bacillus coli communis found in the feces.

2. In the later stages of tuberculosis or in toxemic cases, the purified tuberculin, if given in appropriate dosage and under due precautions, is a useful adjunct to sanatorium treatment.

3. The improvement in the general condition, due to the checking of the intercurrent infection, enables the tuberculin to act favorably upon processes which, had the concomitant bacteria been disregarded, would certainly be more refractory, if amenable at all.

ON SOME RECURRENT FEBRILE ATTACKS IN CHRONIC PULMONARY TUBERCULOSIS.*

BY CARROLL E. EDSON, A.M., M.D., DENVER, COLO.

During recent years the therapeutic attention of the phthisiologist has been directed chiefly to the use of the tubercle bacillus, or its products,

* Read at the meeting of the American Climatological Association, Hartford, Conn., June 12, 1912.

for the cure of pulmonary tuberculosis. Important and interesting as these may be, there are still many problems in the care of patients with chronic tuberculosis which involve other factors than the tubercle bacillus and its histologic works. The physician must be alert to these factors if he wishes to do the best for his patient, and not be led to the narrow vision of a tissue process rather than to seeing a man with a disease.

It is for this reason that I venture to ask your attention very briefly to a phase in the management of cases of chronic tuberculosis which I have found of interest, and which I have so far not seen mentioned by any writer. My observations are purely clinical, and without laboratory argument. Quite possibly you have all recognized the condition yourselves, and can confirm my interpretation of it. Should it by chance be new to any of you, I think it may be of some help in the tedious management of these cases.

We all know the tendency of patients to attribute every access of fever or cough to "taking cold." The man who has always done well till just the few days prior to each visit, when he "took a little cold," is well known to us all. Carelessness, neglect, overdoing or the unpreventable progress of the disease are alike unrecognized by him, and the symptoms of renewed or increased activity of his disease, attributed wholly to a supposed insignificant cold. The physician knows better, but because of this knowledge is at times too prone himself to refer every access of fever, every increase of cough or expectoration, to an extension or lighting up of the tubercular process.

The patient's error results, especially if carelessly concurred in by the physician, in his continuing an active life and bodily exercise at a time when for every reason he should be quiet, or even in bed.

On the other hand, the physician, too closely thinking of the tubercle bacillus, may misinterpret these occasional periods of fever, and, convinced rightly of the importance of absolute rest during an active tubercular invasion, keep his patient unnecessarily confined, and view the case with too grave a prognosis.

To separate clearly and surely the symptoms and signs due to an intercurrent or non-related process from those due to the chronic and underlying disease is as important as it is frequently difficult. For a number of years I have been studying a type of case which presented this difficulty, and which for some time I failed to fully appreciate.

A patient with a chronic pulmonary tuberculosis, usually fairly extensive, gives a history of having repeated attacks of fever. He says — for I have found more of these cases in men — that he takes a cold, has fever, cough, some increase in expectoration, and goes to bed. His fever lasts from a week to ten days, or more, and gradually subsides. He has been kept quiet for a few days longer to insure quiescence of the activity, and then allowed to get up. Shortly afterwards he begins over again, and in a few weeks is back in bed with a repetition of the attack. Casually considered, the picture is one of frequently renewed activity, and the patient becomes despondent at his failure to progress or maintain his gain. In the hurry of the physician's daily work these attacks are not carefully studied and compared each with the preceding ones. When this is done a certain number will be found to have quite another cause than that of tubercular reactivity. Careful examination shows, first, that while the patient has fever, — usually moderate, though occasionally as high as 102 in the evening, — this has come on without apparently any adequate cause. There has been no undue increase in exercise. There has been no known or obvious reason for "taking cold," no coryza, no preceding pharyngitis. The fever and the malaise from it are without fault of his. There is an increase in cough, usually moderate; the increase in expectoration is also slight as a rule, though occasionally marked. When so marked it will be found that the increase is almost wholly mucoid. The purulent heavy or yellow portions are, as a rule, not relatively or proportionately increased. There is rarely any sense of tightness in the chest suggestive of an acute bronchitis. The picture is never that, but rather of a so-called "flare-up of the old lungs." On examination, however, there is this difference: Often, especially in cases where there is much scar tissue, the only change in signs is that the formerly coarse, dry râles have become a little sticky. There are no fine râles; no new râles; no evidences of new infiltration or moisture along the border of the old areas. This is most suggestive, for almost invariably new activity will show itself at the edge of the previously unaffected tissue. There may be no increase in signs whatever, leading at first to the careless assumption that any new focus or activity is deep-seated. The tongue may be coated or remain clear. The bowels have usually been normal, and are sluggish only from the confinement to bed, and the light diet usually imposed. There may be some sweating at night in patients so disposed; otherwise I have found it very rare, save as induced by drugs. If treated as a simple tubercular fever by rest in bed, the subsidence is slow and gradual, and the patient in from one to three weeks, according to the strictness of control, is out again. Such is the picture of an attack.

My first suspicion that this might not be due to tubercular activity was aroused upon a comparison of carefully kept notes of physical examination, when I found that after several such periods of fever there was in total no change in the chest condition over that noted before the first attack. Such could not have been the case had the spells been due to advancing or renewed activity. Nor was there any falling away in weight. An explanation that they were due to repeated intercurrent illness seemed to lay too great a burden on pure ill-fortune, and the picture was too similar each time. Finally, on studying my notes, I found that there was in each case a fairly regular

periodicity in the attacks, the onsets being from four to six or eight weeks apart, and the intervals between varying with the severity and duration of the febrile periods, a mild attack being followed by a second a little sooner than a severe one.

This similarity to migraine first suggested the possibility that the fever was due to an eliminative process, not an inflammatory one. Acting on this theory, I found that by the use of oxydizing aids, salicylates, potash and purgation, the attack was shortened. Upon following out this clue, — that the periodic fever was due to an attempt to eliminate incompletely oxydized waste, — an attempt was made in one case in which the attack had been quite regularly spaced to forestall the next attack by giving a purge and large doses of salicylates forty-eight and twenty-four hours before the expected return. This was partially successful. A second trial averted it, and subsequent to this the patient has prevented any recurrence. In one case in particular, — a physician with advancing and extensive lesion, — the recognition of the non-inflammatory nature of his periodic fever put an end to his spending fully half his time in bed; and he so far regained his courage as to be married, and died three years later from acute dilatation of the heart, due to extreme fibrosis, but without a return of his fevers.

The recognition of these cases rests chiefly upon two factors: First, the repetition of attacks without adequate cause in cases otherwise under conditions for improvement, and without correspondence of evidence of tissue change to the constitutional signs; and second, upon a certain regularity of the periods of recurrence. For the first, careful records of the findings at each attack is important; for the second, a record of the dates of occurrence is essential. The patient should keep a calendar, and mark each attack, a menstrual chart, as it were. A history of such repetitions is suggestive; but until a second or third is recorded exactly, no certainty can be placed on the diagnosis.

In seeking an explanation of the attacks, it appeared that they occurred usually in patients with rather extensive involvement of the pulmonary tissue, such as would lead to generally lessened power of oxygenation; in patients who were especially careful in maintaining their nutrition at a maximum, and in avoiding overexercise: who were especially conscientious in their obedience to régime. Many if not most of them were fairly liberal in their consumption of starchy foods, though rarely was any gross disproportion noted in the diet.

None of the attacks were characterized by true migraine, and none were typical bilious spells, or associated with noticeable confinement of the bowels. They apparently were pulmonic in origin. That they were due to accumulated unoxydized pyrogenous material, however, seems probable, if not proven by the prompt and often complete relief obtained when such an origin was made the point of therapeutic attack.

That the evidences of trouble were almost wholly in the lungs seemed probably due to the fact that in the chronically congested or mildly secreting surface of the bronchial mucosa, or the ulcerated areas, there was a point of discharge along which an adjuvant elimination could take place, similar to the serous diarrhea occasional in a nephritis. The periodicity depended on the completeness of the burning out of accumulated material, and the rate of its excess storage afterwards.

Their relative infrequency in women was accounted for by the relief due to the menstrual flow, though the occurrence of fever and pulmonary congestion in tuberculous women just before the menses suggests a similar period of accumulation.

No little light was thrown on this point by the discussion in Hare's "Food Factor in Disease" on the relation of hyperpyremia and periodicity.

If the fever resulted from such accumulation, any diminution in the intake, or increased means of oxydation must afford relief or lessen recurrence. Accordingly, during an attack, unless necessitated by other reasons or marked discomfort, the patients have not been put to bed, but allowed up; have been given a scanty proteid and green vegetable diet, hyperabundance of water, and some form of salicylate, according to tolerance, and a mild calomel or podophyllin purge. In some few cases with coated tongue I have found nitrohydrochloric acid helpful. The chief reliance and the best results have come, however, from recognizing the nature and cause of the attacks, and following the indication for a greater amount of exercise in the intervals; and, when necessary in addition, anticipating each recurrence by a course of salicylates for a few days every four, six or eight weeks, as the case might be. Under such régime it has been possible to abolish some entirely; and so to lessen the severity of others as greatly to improve the physical condition and progress of the patient, and relieve him from the gloom of a supposed intractable tubercular fever.

A LABORATORY-COURSE IN PHYSIOLOGY BASED ON DAPHNIA AND OTHER ANIMALCULES.

BY GEORGE V. N. DEARBORN, M.D., PH.D.

(From the Physiologic Laboratory of the Tufts College Medical and Dental Schools, Boston.)

In the course of the work in general elementary biology used as an introduction and orientation to the instruction in human medical physiology, it has become obvious that the time has come for broadening, and not little, the practical phases of such instruction. Especially clear is it that already we instructors have wasted too many months of our students' precious school-time in the study of isolated and thus unnourished and *abnormal mechanisms*. One thinks, of course, at once of the nerve-muscle preparation and of the isolated heart and of strips of cat's bladder. These have long-since served their day and now it is high time

that we began to take the viewpoint of the more advanced physical educationists, and attempted to elaborate in our teaching the mode of working of normal organs and tissues in normal animals. The scientific, like the other, tendencies of the day is toward synthesis and unification, toward the study, more and more exact, of "things as they are," — inseparable parts of an animal whose ultimate essence is unique individuality, an everywhere mutually interdependent single mechanism, not a chest of independent tools. This synthetic tendency in physiology, and in biology in general, applies not alone to discussions of the parts of a single animal, but also to the pointing out of the unification and inherent similarity of all that lives. The recent books by the plant physiologists have taken us far toward this desirable goal, while the devotees of the new science of animal behavior, and the physiologic zoölogists, yes, even the protozoölogists, have taken us further yet. To-day, then, as we never could before the days of these and of the physical chemists, do we realize how universal and how minute is the unification of parts into the unit of vitality, the animal, and how much alike, essentially, all animals are.

The new course in laboratory physiology suggested here (already worked out in detail for use by the student) has perfect theoretic sanction therefore, as a new method in the teaching of physiologic science, — it is clearly a licentiate of evolutionary philosophy. In directer phrase, the fundamental doctrine and many of the facts of mammalian physiology can be demonstrated in animals far below the mammals in complexity and vastly smaller in size. Vital mechanics uses relatively few really different ways and means. The protozoa and especially the small crustacea and rotifers are for the purposes of elementary physiology far more similar to man than their size-contrast would imply. The course as arranged at present includes both physiology of a basal kind and a modicum of what we may term physiologic anatomy, and, furthermore, something of animal psychology, — ever closer to physiology, as is inevitable. With a wide choice and selection from the well-nigh infinite variety of material known to the professional zoölogist, there is no definable limit to its development in each of these three directions within elementary bounds.

As old-time physiologists, perhaps some of us have never realized the exact status of our science in the mind of the people at large. The anti-vivisectionist people have seen to it well that the "average" man and most women and children shall consider physiology a matter of (necessary) blood and forbidding "internal workings" far beneath their proper interest. We have scarce had a fair chance as yet to do our relatively new science justice in the world's keen range of reputations, nor have we had time (so full of life is our subject-matter and so teeming with interest) to popularize physiology and so give it its becoming place in the hierarchy of human sciences. To do this, however, is more than our privilege; it is our duty, in order that many minds, many more than at present, may each contribute its possible mite to the advancement of biologic learning. Moreover, it is part of the intelligence-birthright of every human being to understand how he is constructed as a mechanism, and how this mechanism works. Only thus can he give his body, at once trainer, temple, and servant of his soul, fit and necessary care. This present work is a step, however short and shuffling, toward this great end.

The standing of this pioneer endeavor as a pedagogic proposition, as a scientific method, we may attempt to justify at the present writing under six heads. The first of these heads we may suggest as *the substantiality and the variety of the physiologic principles that can thus be studied.* Remembering, if the reader please, that this is a first "edition" and, therefore, tentative and suggestive only, we may venture to quote a syllabus of the work already arranged, as follows:

A LABORATORY COURSE IN PHYSIOLOGY BASED ON DAPHNIA, ETC.

I. *Introduction: Vegetal and Animal Histology.*
II. *Comparison of Living Vegetal and Animal Cells:* Bacteria, desmids, diatoms, Edeogonium, Spirogyra, Euglena, ciliated infusoria. The relations of micro-organisms to disease.
III. *Protoplasm and its Streaming: Ameba.* Surface-tension. Universal versatility.
IV. *Locomotion by Cilia: Paramecium, Stentor.*
V. *Simple Forms of Muscle: Hydra, Stentor, Vorticella, Brachionus.*
   A. The reaction-time of Stentor's or of Vorticella's myonemes.
   B. The relaxation-time of Stentor's or of Vorticella's myonemes.
   C. The spontaneous contraction-rhythm of Vorticella.
   D. Fatigue in Vorticella's myonemes.
   E. Exhaustion in Vorticella's myonemes.
   F. Individual differences in the movements of Stentor and of Vorticella.
   G. Skeletal muscle.
VI. *The Molar Movements of Simple Metazoa: Hydra, the rotifers Philodina, Brachionus.*
VII. *Dessication and Re-humidification: Tardigrada, Philodina.*
VIII. *The Anatomy, Gross and Microscopic, of Daphnia.*
IX. *Nutrition: Daphnia.*
   A. The water-currents toward the mouth.
   B. Deglutition.
   C. The digestive glands and their movements.
   D. Peristalsis.
   E. Speed of the antiperistaltic wave.
   F. Frequency of the antiperistaltic waves.
   G. Defecation.
   H. Catharsis.
   I. Correlation in the alimentary canal.
X. *Blood: Daphnia.* (Compare Hydra and Man.)
   A. Number and size of the amebocyte-corpuscles.
   B. Shapes and intrinsic movements of the corpuscles.
   C. Change of color on exposure to air.

XI. *Circulation: Daphnia.*
- *A.* The heart. Systole and diastole.
- *B.* The average heart-rate.
- *C.* The effects of varying temperature on the rate.
- *D.* The heart's extreme persistence.
- *E.* The blood-sinuses. Osmosis.
- *F.* The effects of electricity on the heart.
- *G.* The effects of blood-salines on the heart; osmosis.
- *H.* The effects of certain other drugs on the heart.
- *I.* Correlation with extrinsic conditions.
- *J.* The embryonic heart-rate: why slower than the maternal heart-rate? Myogenesis *vs.* Neurogenesis.
- *K.* The cardio-inhibitory center.

XII. *Respiration: Daphnia.*
- *A.* Direct respiration.
- *B.* Structure of the gill-feet.
- *C.* Rhythmic movements of the gill-feet.
- *D.* Apnea?
- *E.* Effects of carbon dioxide in excess.
- *F.* Effects of a lack of oxygen.
- *G.* Effects of carbon monoxide.
- *H.* Hemocyanin in solution.

XIII. *Muscle and Muscle-Action: Daphnia.*
- *A.* Smooth muscle of the alimentary canal.
- *B.* The eye-muscles. Convulsive action.
- *C.* Voluntary muscle of antennæ, etc. Fatigue.
- *D.* Cardiac muscle. Tonus. Actions of the ions in the various blood-salines. Absence of obvious fatigue.

XIV. *The Nervous System: Daphnia.*
- *A.* Brain and optic lobe.
- *B.* Moto-sensory circuit: Retzius's work.
- *C.* Augmentory action: heart.
- *D.* Inhibitory action: heart.

XV. *Taxes: Daphnia, Cyclops, etc.*
- *A.* Chemotaxis: Paramecium, Anurea.
- *B.* Phototaxis: Daphnia, Ameba.
- *C.* Thermotaxis: Paramecium, Oxytricha.
- *D.* Electrotaxis: Cyclops.

XVI. *The Senses: Daphnia.*
- *A.* Vision: Range and acuity.
- *B.* Touch. "Reflex" removal of irritants.
- *C.* Taste.
- *D.* Smell?

XVII. *Embryology: Daphnia.*
- *A.* Summer eggs and their development.
- *B.* Winter eggs.
- *C.* Parthenogenesis.
- *D.* The brood-sac and its secretion.
- *E.* Coalescence of embryonic eyes.
- *F.* Comparison of various functional rates in embryos and in mother.

XVIII. *Animal Behavior: Paramecium, Hydra, etc., etc.*

XIX. *The Mental Life of the Animalcules.* The inherent individual will.

One finds here basal and important principles of universal physiology, and the ingenuity of other experienced physiologists would surely indicate and define many principles more. The essentials of much physiology certainly are present in experimentation of this relatively simple kind.

A second possible feature of this manner of teaching elementary physiology has been alluded to by implication already: *the transparency and the smallness of the animals used make more striking and easy of acceptance the essential unification of parts into the animal whole.* In Daphnia this is notable in the interest a first viewing of the animalcule invariably excites whether in man or child. One actually sees, for example, the blood corpuscles that are kept in circulation by the heart pulsating under the observer's eye; and the intestinal peristalsis can be actually seen to advance up the gut in relation with the pulsations of the digestive gland. Here is unification too obvious to be missed even by the careless child. Without a comprehension of the interdependence of his bodily parts he can learn neither to understand himself nor how to keep well!

A third advantage of such a course lies *in the simplicity and the inexpensiveness of the apparatus required.* Many elementary schools have compound microscopes, and every school or even every student could provide at least a strong pocket-lens, which might be made to suffice. Beyond the microscope the apparatus required is almost nothing not afforded by every laboratory of chemistry, if we except a few always-present implements such as a watch, a millimeter rule, and small and simple glass-ware. To those of us who know the considerable expense of most of the apparatus that we use, this factor will appeal. At any rate, it puts this course within range of any school, no matter how simple or indigent or isolated, and makes more affluent schools more independent than heretofore of the avaricious apparatus-dealer.

In similar manner, *the life-material required is always obtainable with great ease* and with little or no expense, summer or winter, and throughout the world. As is well known, these animals have an almost earth-wide distribution and are easily gathered from pools and streams. If this be not convenient, a few cents for postage brings most of these animalcules within easy reach of such few schools as for special reasons might not care to maintain the simple jar-aquaria for breeding them. They come in such countless numbers so readily that whoever made a business of supplying them could not conscientiously, one would hope, charge for them more than the smallest public class could easily pay.

Ease of maintenance of the animalcules is an advantage close to that just mentioned. Instead of ill-smelling animal-rooms expensive to maintain, containing unhappy large animals often both hard and expensive to properly feed, the animalcules are kept in more or less attractive glass aquaria that need contain no more than a few liters of water each for use of large classes. Many of these little animals maintain themselves year after year, Daphnia, for example, not "running out" as long as one uses just ordinary intelligence in imitating a simple environment somewhere near that which is natural to it. The infusoria, of course, Stentor, Paramecium, etc., can be readily developed at any time in two weeks from old leaves and hay and similar commonplace material, everywhere and always at hand.

No one with a quirkless brain can nowadays fail to justify vivisection by competent scientists, but many, none the less, men as well as women

and children, savants as well as fools, dislike to do this work, especially for purposes of routine class-instruction. This repugnance to blood-shedding and mutilation is obviously a necessary human feeling worthy to be cultivated rather than blunted. (In the vivisection polemics one sees too seldom perhaps due credit given us animal-experimentalists for the performance of disagreeable death and mutilation on animals whom we of all men best appreciate at their marvelous value and perfection.) Strangely enough, the size of the animal is a factor in the determination of the strength of this feeling of repugnance to mutilation found in all normal human beings, while another of its determinants is complexity. Men of culture who would hesitate to kill a mouse or to drown a puppy have no such feelings ordinarily in regard to ants, however wonderfully efficient in their complex living, or in regard to the medusoids, however large and conspicuous. Thus *the animalcules may be adequately studied by young or old, by boys and girls, without a prohibitive feeling of repugnance* to the destruction of life. This circumstance is both justifiable biologically and ethically and practically convenient for teaching purposes, and gives the animalcules an advantage for scientific purposes not easy to exaggerate.

It has been already sufficiently implied perhaps that this course in practical physiology is for elementary use, although it serves a helpful purpose also as an introduction and advance summary epitome for courses of physiology the most advanced and technical, as routine experience indeed has shown. In high schools, in academies and in academic (collegiate) curricula, particularly in those for women, one might expect its value especially to be demonstrated. From such schools all laboratory-physiology worthy of the name has been heretofore excluded. It is on this basis and with this intent that the present tentative suggestions have been offered to the science of physiology, for development into an efficient new educational method.

THE ARGUMENT FOR THE LARGE STATE INSANE HOSPITAL.*

BY WALTER CHANNING, M.D., BROOKLINE, MASS.

THE Worcester Hospital was opened in 1833 to accommodate 120 patients and was enlarged in 1835 to 250. Taunton opened in 1854 and was intended to accommodate 250; Northampton, 1856, to accommodate 250. Danvers, 1878, to accommodate 400; Westboro, 1887, to accommodate 325.

In 1888, the capacity of the Worcester Hospital had been increased to 771, the asylum accommodating, in addition, 395. Taunton was enlarged to 624; Northampton to 481; Danvers to 715; Westboro to 406. In 1911, the population of the two institutions at Worcester was 2,526; Taunton, 973; Danvers, 1,446; Westboro, 1,138; Northampton, 893; and the percentage of increase at the different hospitals was as follows:

	1911.	1888.	Percentage.
Worcester,	2,526	1,166	116.63
Taunton,	973	624	55.92
Danvers,	1,446	715	102.23
Westboro,	1,138	406	180.29
Northampton,	893	481	85.65

an average increase for the five hospitals of 105.66%.

It is unnecessary to go into the causes of the increase in hospital population in this place, as you are all familiar with the situation. I call attention to these figures especially for the purpose of showing how the standard of the desirable number of inmates in a hospital changes from time to time, in accordance with the changes in these numbers. Dr. Pilgrim, in a very excellent paper on "The Proper Size of Hospitals for the Insane," published in the October number of *The American Journal of Insanity*, in 1908, points out this fact, though not in the same way that I do here. He quotes what a committee of the Association of Medical Superintendents of American Institutions for the Insane said, in 1850, which was as follows: "The standard number that can with propriety be treated in one institution is 250, while 200 is a preferable maximum." For some years the institutions were kept more or less within narrow limits, but in 1866, owing to the fact that the numbers were creeping up, it was necessary to modify this proposition, and in the form offered to the Association it read as follows: "The enlargement of an institution for the insane, which, in the extent and character of the district in which it is situated, is conveniently accessible to all the people of such district, may be properly carried to the extent of accommodating 600 patients, embracing the usual proportion of curable and incurable insane in a particular community." As Dr. Pilgrim says, though the Willard Asylum was built about this time, for more than two decades the size of institutions was limited to 600 beds. I can remember myself when even this number seemed too large for an ordinary hospital. As late as 1888 the report of the Board of Health, Lunacy and Charity said, referring to Danvers, "It is desirable that this limit, 700, never should be again exceeded, for every patient beyond 700, in Danvers' wards, crowds them and lessens the comfort and possibility of recovery of patients."

Dr. Pilgrim, as you no doubt are aware, comes to the final conclusion that 1500 is about as large a number as an institution should accommodate. His own preference, he says, would be for an institution of not more than 1,000 patients, but that limit might be raised, without serious disadvantage to the patients, to 1,500. He gives what seem to him very good reasons why this number is about as large as can be successfully supervised by one man. He thinks the maximum efficiency is certainly reached, and the probable maximum of economy, also, in institutions of from 1,200 to 1,500 beds.

Dr. William L. Russell, late medical inspector

* Read at the semi-annual conference of the State Board of Insanity and Trustees of State Institutions, May 21, 1912, the subject under discussion being: "Size of Hospitals for the Insane and Feeble-minded."

for the New York State Commission in Lunacy, in their report for 1911, states that he believes that 2,000 is as large a number as should be treated together in an insane hospital, and gives some figures which indicate that the recovery rate falls above that number. He later modifies his statement in regard to the 2,000 by saying that there seems to be at present no way of coming to a definite decision in regard to the maximum number of patients which can be provided for in one institution without loss of efficiency in treatment or of economy in administration. The new hospital which is being built at Mohansic was originally intended for 2,000, but he recommends that it should be enlarged to 3,000.

It would seem from the authorities referred to that, almost of necessity, the ideal size of an insane hospital is a matter rather difficult to determine, and we are obliged to shift from one standard to another as the hospitals grow in size, which is rather conforming theory to practice instead of the other way around. It is an unfortunate fact that we cannot limit the growth of hospitals as we would like to do. They are constantly outgrowing their normal capacity, and a new situation arises. I believe that we are not in a position to carry out any dictum as to what the maximum size of a hospital should be, but no doubt it is well to thoroughly discuss the matter, as the influence of those who have the care of the insane must always carry great weight.

It was the old idea that it was of great importance that the superintendent himself should be actively engaged in the treatment of patients. As institutions grew larger, this became impossible, but it was still felt desirable that he should see as much as possible of the patients. The argument now is that if we have such large institutions as 2,000, or upward, the influence of the personality of the superintendent would not be as dominating as is desirable. Dr. Pilgrim asks "how any man, weighed down with the official duties connected with the management of an institution for 3,000 or 4,000 patients, and 800 or 900 employees, can so impress his individuality and influence upon that number, or keep in sufficiently close touch with both medical and lay matters, as to secure the best results." A few years ago, I should have doubted whether it would be possible for a superintendent to actually overlook the care of as large a number as even 1,500 patients, but as I have studied into the matter, seen large institutions and what it is possible to do with them, I have somewhat changed my opnion. No superintendent in any but a very small hospital can actually treat individual patients. Of necessity he becomes an administrator, and details of treatment he leaves to his assistants, who should be men of the highest medical qualifications. This does not mean that he knows nothing of the patients, because in a well-organized institution he will have a fairly accurate idea of all of the inmates and keep in touch with their medical care. The ideal superintendent for a large hospital is a man of first-rate executive ability, who has had a long clinical experience. The administration largely concerns medical matters and would rapidly deteriorate if this side were in any way left out of consideration. There have been plenty of trials made of the management of hospitals by laymen, but as far as the writer's experience goes, they have been successful in only exceptional cases. As to the influence of a superintendent, I believe that it will be felt no matter how large the institution may be. A general's influence affects every private in any army; a great statesman will influence a nation; a head master, a great school. Why, then, should not the character, experience and knowledge of a great superintendent have their effect? I believe they are all-pervasive, and every employee and every patient reacts to them.

A large institution for 2,000 and upwards, with plenty of buildings for classification, a sufficient number of medical officers and nurses, and proper facilities for treatment, I believe can do better work and get better results than a small and overcrowded institution with inadequate classification, and a small lay and medical staff. In other words, the size of an institution, up to certain limits, is not of such importance as are these other factors.

It is somewhat surprising, I think, when there has been so much discussion and agitation for the last thirty years about the desirability of small rather than large institutions, that we have seen so little done in this state in the way of starting new ones. Since 1878, for instance, the Boston State Hospital, with its new psychopathic department, has been the only addition to the existing state hospitals for all classes of the insane. We must not forget, however, that the large increase has been met in various ways, first of all, of course, by doubling the capacity of the insane hospitals; then by increasing the number at the criminal hospital; taking insane at Foxboro, and adding to the numbers at Tewksbury; also a hospital for epileptics has been provided, and a new school for feeble-minded and the old one enlarged. Colonies for the insane and the Medfield Asylum have been built, but what I refer to especially is a state hospital for all classes of the insane. I believe Dr. Russell is right when he says that "it is safe to assume that the public is prepared to provide state hospitals only for insane persons for whom institutional care is clearly indispensable." While Massachusetts has, on the whole, been more liberal in its provision for the insane, she follows the lead of New York, preferring to make the existing institutions larger rather than build new ones, and I believe this is a policy which she will be pretty sure to follow in the future.

Theories as to the size of institutions are desirable, but the evolution of the institutions in this state demonstrates that if they begin small, they are pretty sure to become overgrown and end as large institutions. Now, in my judgment, it is better to face the condition rather than to be too much influenced by the theory, and prepare

ourselves for large hospitals. The proper plan, it seems to me, would be to have, in the Boston district, a large institution, which, as Dr. Russell thinks about a metropolitan hospital in New York, should be permitted to be larger than others in the state. How large, it is much better not to try to determine too accurately. I should say, though it is a mere matter of guess work, that 3,000 would be none too large. Probably we must expect the new Worcester hospital and Danvers to increase their numbers to 2,000; perhaps Westboro, also, may grow to this number. Northampton can be kept down possibly to 1,500. As to Taunton, I am not familiar enough with the situation there to form any idea how large it may be expected to become from the district surrounding it. Some of the hospitals, according to the population and also the districts where they exist, should be large and others smaller. In considering the enlargement of our state institutions, I have in mind the development of colonies as part of the provision for the increase. From 500 to 1,000 possibly should be taken care of in a colony, in an institution which has grown up to 2,000.

As I have said already, I would not advocate a number as large as 2,000 unless there could be sufficient buildings for adequate classification and proper medical supervision. I believe it would be easier to obtain these things than to get an appropriation for an entirely new institution, and that in the end we might be as well off. There are many difficulties under which those who have the charge of state hospitals for the insane now have to labor. If these could be overcome, I am quite sure we should see an increase in the recovery rate and probably a lessened per capita cost, and the figures would compare favorably with those given by Dr. Pilgrim. But what can we do if we have hundreds of patients sleeping in day-rooms; too few medical officers paid less than they should be; staffs of nurses far from large enough, and buildings so few in number that we cannot make the proper classification? Give the hospitals money enough for what they need, and the results would certainly be better than at present.

It is pleasant to feel that we are entering on a new era in the care of the insane in hospitals in this state. With the Psychopathic Hospital in Boston, which is and will probably continue to be a small hospital, we are going to see much larger numbers of acute and incipient cases treated promptly and radically, and we shall also probably have more medical men who understand mental diseases, interested and willing to take hospital positions. With this hospital a success, others in other parts of the state will be built. It may be that during the next ten years we may expect to see several new psychopathic hospitals, and more room provided for the increasing numbers in new buildings, in more or less close connection with those already existing, and in colonies at some distance. At any rate, there is sure to be a period of much greater activity in the early and after-care of patients, and an ultimate improved recovery rate.

To summarize briefly what I have said: First, it appears that the history of state insane hospital development in Massachusetts shows that hospitals built for small numbers gradually increase these numbers, until they become large institutions. Second, that every dictum as to the standard of size of hospitals has of necessity been raised as numbers have augmented. Third, that at the present time we cannot determine what the maximum size of an institution should be to obtain the greatest degree of efficiency and economy. Fourth, that with a population of 2,000 patients, provided the buildings are adequate and the organization efficient, the results will be as good as in smaller hospitals. Fifth, that psychopathic hospitals will supplement the work of the large hospitals and permit opportunities for the study, close observation and early treatment of patients.

THE PROGNOSIS IN DEMENTIA PRECOX.*

BY A. W. STEARNS, M.D.,

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(From the Danvers State Hospital.)

IN giving a prognosis for dementia precox, as the diagnosis is made to-day, there is a growing tendency, especially among institution men, to offer very little or no hope for recovery. This seems to be hardly justifiable if one bases his opinion on existing statistics, and, therefore, it seemed worth while to me to make a study of the records of the Danvers State Hospital with this special aim, — to place in the hands of the profession some figures which would show the exact result of the disease as it is diagnosed at Danvers.

In offering these figures, the chief source of doubt is, of course, in the accuracy of the diagnosis. It has been said that recovery precludes the diagnosis of dementia precox. This my own experience has shown to be untrue, for I have repeatedly seen patients discharged apparently well with the diagnosis of dementia precox affirmed by the entire staff, all expressing the opinion, however, that we would hear from the case later.

A word here in regard to the method of arriving at a diagnosis seems not out of place, so I will describe it briefly. Upon being admitted to the hospital, each patient falls in rotation to some member of the staff, whose duty it is to make a physical and mental examination and obtain a history. This being done after a few days of observation, the case history and later the patient is presented to the staff with a provisional diagnosis by the examiner. Each member of the staff then has an opportunity to question both the patient and the one presenting him or her. Ample time is allowed for discussion, which is usually quite free. The opinion of each staff member is expressed and recorded. Next running notes are made recording the attitude and

* This paper forms No. XIX of the Danvers State Hospital contributions and was first read at the meeting of the New England Society of Psychiatry in September, 1911.

production of the patient in the ward. Upon discharge another presentation is made with free discussion, and here the diagnosis is determined. Although error is not eliminated, as shown by Dr. Southard,[1] this error is certainly minimum. Some of the cases have been continuously in Danvers and so have not had a second presentation. Their diagnosis was referred to ward physicians who had known them for several years and so is presumably correct.

In order that the group might represent a unit number of cases and at the same time allow a period of years to have passed for recurrence or relapse, I have chosen for consideration all cases admitted during the years 1901 to 1905 inclusive upon which the diagnosis of dementia precox has been *determined*. This, of course, does not include a good many doubtful cases, which at times resembled dementia precox, but upon whom other diagnoses have been determined or which have been left unclassified. Undoubtedly this group offers the greatest source of error, and if studied would add greatly to our knowledge of the disease, its diagnosis and prognosis. This, however, is a separate task.

During the above-mentioned five years there were 2,589 admissions to Danvers, 395, or 15.2% of which, have been *determined* to be cases of dementia precox. This percentage is perhaps a little high, but is so because of the fact that in 1904 the state assumed the care of all insane, and neighboring towns sent in many old dements from their poorhouses, most of whom were cases of dementia precox. Of these 395 cases, 151 were male and 244 females. The purpose of this research, then, was to find the whereabouts and condition of these 395 persons.

It was found that 187 of them had been discharged from the hospital. The condition of these upon discharge is shown by Table I.

TABLE I.

Showing Condition of Discharge Cases at Time of Discharge.

Condition.	Male.	Female.	Total.	Percentage of cases discharged.
Not improved,	42	50	92	47
Improved,	8	36	44	23.5
Much improved,	9	29	38	20
Capable of self support,	11	2	13	7
	70	117	187	47% of total number of cases.
Readmitted,				44
Readmitted twice,				9

A questionnaire was sent to the last address of relatives of those discharged, and an inquiry sent to each state hospital and asylum for information of transferred cases. Forty cases were found to have been deported and as it seemed unwise to attempt to locate them, they have not been considered.

Of the remaining 355 cases, 315 were located. See Table II.

[1] Boston Med. and Surg. Jour., vol. clxiii, Aug. 4, 1910.

TABLE II.

Showing Percentage of Cases Traced.

	Male.	Female.	Total.	
Traced,	122	193	315	(80% of total. 88% deducting deported cases.)
Not traced,	29	51	80	

The 315 cases, then, represent the basis for our figures. Table III shows their distribution.

TABLE III.

Showing Distribution of Traced Cases.

	Male.	Female.	Total.	Percentage of traced cases.
Now in hospital for insane,	80	122	202	64.1
Dead,	27	48	75	23.8
Boarding out,		8	8	2.5
At home apparently well,	8	8	16	5.0
At home demented,	8	6	14	4.5
Total,	123	192	315	

One is immediately impressed with the large number of deaths, and an inquiry as to the cause of this is of interest. The rôle which tuberculosis and other pulmonary affections play is especially noticeable. See Table IV.

TABLE IV.

Cause of Death in 75 Dead Cases.

I.	General diseases:	
	Septicemia,	4
	Typhoid fever,	2
	Carcinoma,	3
II.	Diseases of nervous system:	
	Cerebral hemorrhage,	1
III.	Diseases of the circulatory system:	
	Myocarditis,	2
	Mitral insufficiency,	1
IV.	Diseases of the respiratory system:	
	Bronchopneumonia,	8
	Lobar pneumonia,	6
	Pulmonary tuberculosis,	29
	Pulmonary gangrene,	1
V.	Diseases of the digestive system:	
	Acute enteritis,	2
	Acute gastro-enteritis,	2
	Acute entero-colitis,	2
	Dysentery,	3
VI.	Diseases of the genito-urinary system:	
	Chronic diffuse nephritis,	1
	Uremia,	1
	Cardio-renæ,	1
VII.	Accidental death:	
	Fracture base of skull,	1
	Suicide,	1
	Asphyxia,	1
VIII.	Miscellaneous:	
	Inanition of dementia precox,	1
	Unknown,	2
	Total,	75

It will be seen that although but two deaths were due directly to dementia precox, it nevertheless ranks as an extremely fatal disease. On might suppose the high mortality to be due to the large number of old persons admitted in 1904, but analysis shows the percentage in first admission and in the total number of cases to be about the same. See Table V.

TABLE V.

Showing Number of Deaths among First Admissions and Old Cases.

	Male.	Female.	Total.	Percentage.
First admission,	19	33	52	18% of first admission.
Total,	27	48	75	19% of total cases.

Of the 202 cases now in hospitals for the insane, 98, or 24%, have had a continuous hospital residence. We now have left for consideration the cases who are living at home. As these were scattered throughout the United States, one even being in Alaska, it was deemed impossible to interview them, therefore we are dependent upon the report of friends for our knowledge of their condition. This report is without doubt inaccurate, but seems the best that can be had. The error will merely give us too many recoveries rather than too few. In fact, one of the reported well cases has recently been seen and is without doubt slightly demented, while another has been committed to Danvers again. A few have been seen and appear quite well. The condition of patients at home will be seen in Table III.

There seems to be no exact criterion by which to decide upon the condition of patients. For instance, one man much demented, hallucinated and deluded is able to care for a small farm for weeks at a time in the absence of his employer, while another who is apparently a normal man has never been able to support himself since his release from the hospital.

After careful analysis of the apparently well group, Dr. H. W. Mitchell, who was familiar with the patients themselves as well as their record, was of the opinion that they were not cases of dementia precox, but were for the most part atypical depressions. In fact, upon none of them was the opinion of the staff unanimously in favor of dementia precox. This question I will not attempt to decide, as my purpose was to show the results of the disease according to the records as they now stand.

As the result of this investigation the following facts seem worthy of notice.

I. The apparent hopelessness of the disease dementia precox as far as mental health is concerned.

II. The high mortality, especially from pulmonary tuberculosis and other pulmonary affections.

III. The probability of subsequent relapse, even though the patient apparently recovers from the first acute attack.

IV. The large number of cases requiring permanent hospital care.

V. The danger of mistaking atypical depressions for catatonic dementia precox.

THE GASTRO-INTESTINAL DISTURBANCES OBSERVED IN PERNICIOUS ANEMIA.*

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THE relation existing between pernicious anemia and various gastric affections has been a matter of great interest for many years. As early as 1860 Austin Flint [1] called attention to the possible dependence of certain cases of pernicious anemia upon certain degenerative changes in the gastric mucosa. In 1865 Samuel Fenwick [2] published a memoir on "Morbid Changes in the Stomach and Intestinal Villi Present in Persons who have Died of Cancer," in which he observed the disappearance of the cells in the gastric tubules, granular and fatty degeneration and atrophy, and an increased formation of connective tissue with a marked thinning of the mucous membrane, and with loss of flesh. Especially did this condition occur in persons dying with cancer of the breast. He explained the anemia accompanying this disease as possibly due to the changes in the gastric tubules of the stomach. In 1877 Fenwick [3] reported four cases of pernicious anemia in which atrophy of the gastric tubules was observed. Later Nolen [4] reported two cases of a similar condition; Quincke,[5] one case; Nothnagel,[6] one case, Brabazon,[7] one case, Henry and Osler,[8] one case, and Kinnicutt,[9] two cases.

The opinion was held by these observers "that a primary atrophy of the gastric mucous membrane occurs and that in this lesion is to be found an explanation of certain cases of pernicious anemia." It is evident why this conclusion was reached. The entire degeneration of the glandular elements of the stomach, together with the loss of secretion, appeared sufficient to explain the condition of the blood. It was noted, however, that an entire absence of gastric secretion could exist for a long period of time without impairing the general health of the patient. It is, therefore, impossible to conclude that gastric atrophy causes pernicious anemia, and the two conditions must be classified as a result of a common cause; the cause which produces the hemolysis is also responsible for the atrophy of the gastric mucosa. Grawitz [10] has recently advocated the gastro-intestinal theory as the cause of pernicious anemia, believing this condition to be due to an intoxication. He is inclined to lay great stress upon the achylia gastrica which is so commonly present in this affection. The objection to this theory is founded on the fact that achylia may be present for years without producing anemia; it is frequently present in other conditions, for instance, in malignant affections, or as a result of intestinal parasitic infections. Oestreich and Strauss [11] call attention to the histologic change observed in the mucous membrane of the stomach and intestine, occurring with much constancy in pernicious anemia, to which they attach much importance. The changes consist mainly of an atrophy of the glandular structures, and an accumulation of leucocytes in the submucosa. The accumulations of leucocytes they believe are similar to the leucocytic deposits occurring in other parts of the body in blood diseases. Notwithstanding the fact that the histologic changes show an apparent relation existing between the gastro-intestinal tract and the blood disease, they could not demonstrate a destruction of the blood by a poison generated by ordinary putrefaction in the intestine.

From the experiments of Strauss it is evident that neither ordinary nor artificial constipation is capable of producing the symptoms of perni-

* Presented at the meeting of the American Gastro-Enterological Association at Atlantic City, June 5, 1912.

cious anemia. The hemolytic agent, therefore, which produces the destruction of the blood cells, in anemia must depend upon some special change not present in ordinary putrefaction. Tixier [12] describes the relations existing between gastro-intestinal disturbances and anemia and points to the slight alteration found in the gastro-intestinal canal in patients dying from anemia associated with intestinal conditions. He maintains that the blood changes in these cases must be explained by the formation in the intestine of a poison having both the power of destroying the red corpuscles and that of stimulating the blood forming organs. The latter power is at times exhausted while the hemolytic power is still active. Moffitt [13] has recently suggested a protozoan infection as the cause of pernicious anemia; however, sufficient evidence is not yet available upon which to base such a conclusion.

The gastric secretion has been studied in pernicious anemia by a number of observers; H. Strauss [14] found free hydrochloric acid present but twice in a study of 8 cases; and in 20 cases of Rosenquist, 4 cases of Moracewski, and in 8 cases of Strauss free hydrochloric acid could be detected in but 16% of the cases. Blocq [15] observed that in the stage of improvement in pernicious anemia there is an increase of free hydrochloric acid; while Schumann [16] found an absence of this acid even when patients had

Table Illustrating the Gastro-Intestinal Symptoms of the Fifty-Eight Cases of Pernicious Anemia.

No.	Name.	Age.	Sex.	Anorexia.	Nausea.	Vomiting.	Indigestion.	Bowels.	Total Acidity.	Percentage Free HCl.
1	T. F.	51	M	Present	Present	Present	Absent	Diarrhea	12	0
2	E. R.	47	M	Absent	Absent	Absent	Present	Constipated	10	0
3	K. K.	38	M	Present	Present	Absent	Present	Diarrhea	11	0
4	P. G.	60	M	Present	Absent	Absent	Absent	Constipated	—	—
5	T. N.	45	M	Present	Present	Present	Present	Irregular	8	0
6	F. C.	42	M	Absent	Absent	Absent	Present	Diarrhea	9	0
7	B. J.	62	M	Present	Present	Present	Present	Irregular	33	.02
8	T. M.	57	M	Absent	Absent	Absent	Present	Constipated	14	0
9	S. K.	42	M	Present	Present	Absent	Present	Irregular	13	0
10	D. V.	59	M	Absent	Absent	Absent	Absent	Constipated	56	.14
11	L. J.	60	M	Present	Present	Present	Present	Irregular	9	0
12	B. W.	58	M	Absent	Absent	Absent	Absent	Diarrhea	8	0
13	P. S.	46	M	Absent	Absent	Absent	Present	Constipated	22	.02
14	G. M.	39	F	Absent	Absent	Absent	Absent	Constipated	—	—
15	H. B.	47	M	Present	Present	Present	Absent	Constipated	32	.11
16	S. S.	56	M	Present	Absent	Absent	Absent	Constipated	12	0
17	T. J.	59	M	Absent	Absent	Absent	Present	Constipated	14	0
18	M. L.	43	M	Present	Present	Present	Present	Constipated	8	0
19	S. A.	59	M	Absent	Absent	Absent	Present	Constipated	9	0
20	J. P.	33	F	Present	Present	Present	Present	Constipated	26	.03
21	P. S.	49	M	Absent	Absent	Absent	Present	Diarrhea	9	0
22	C. M.	51	M	Present	Present	Absent	Present	Diarrhea	34	.05
23	L. K.	50	M	Present	Absent	Absent	Absent	Constipated	—	—
24	F. E.	58	M	Absent	Absent	Absent	Present	Diarrhea	10	0
25	H. B.	42	M	Present	Present	Present	Present	Irregular	8	0
26	F. C.	37	M	Absent	Absent	Absent	Absent	Constipated	—	—
27	E. M.	44	M	Present	Present	Present	Present	Irregular	35	.03
28	T. B.	36	F	Absent	Absent	Absent	Present	Constipated	—	—
29	F. N.	52	M	Present	Present	Absent	Present	Diarrhea	—	—
30	K. F.	40	F	Present	Present	Present	Absent	Irregular	41	.02
31	T. M.	59	M	Absent	Absent	Absent	Present	Constipated	—	—
32	A. F.	56	M	Present	Present	Present	Absent	Constipated	14	0
33	E. C.	31	F	Present	Absent	Absent	Present	Constipated	11	0
34	F. K.	37	M	Absent	Absent	Present	Absent	Diarrhea	12	0
35	C. L.	45	M	Present	Present	Present	Absent	Irregular	65	.16
36	K. P.	40	M	Present	Absent	Absent	Present	Constipated	9	0
37	P. C.	36	F	Present	Present	Present	Absent	Diarrhea	8	0
38	H. T.	51	M	Present	Absent	Absent	Absent	Constipated	8	0
39	F. D.	34	F	Present	Present	Absent	Absent	Irregular	8	0
40	P. K.	49	M	Present	Absent	Absent	Absent	Constipated	—	—
41	G. B.	53	M	Present	Present	Present	Absent	Irregular	11	0
42	A. M.	47	M	Present	Absent	Absent	Present	Diarrhea	9	0
43	C. E.	59	M	Absent	Absent	Absent	Present	Constipated	13	0
44	E. P.	40	M	Present	Present	Present	Present	Diarrhea	—	—
45	N. R.	38	F	Present	Absent	Absent	Present	Diarrhea	46	.06
46	K. O.	51	M	Absent	Absent	Absent	Present	Constipated	—	—
47	W. S.	59	M	Present	Present	Absent	Present	Diarrhea	44	.12
48	P. L.	47	M	Present	Present	Present	Absent	Constipated	11	0
49	L. T.	53	M	Present	Present	Absent	Absent	Diarrhea	—	—
50	R. F.	57	M	Present	Present	Present	Absent	Constipated	9	0
51	H. S.	36	M	Absent	Absent	Absent	Present	Diarrhea	—	—
52	S. F.	42	M	Present	Absent	Absent	Present	Irregular	—	—
53	T. B.	30	F	Present	Present	Present	Absent	Diarrhea	10	0
54	P. E.	55	M	Absent	Absent	Absent	Present	Constipated	38	.04
55	T. L.	42	M	Present	Present	Absent	Absent	Diarrhea	—	—
56	K. A.	61	M	Present	Absent	Absent	Present	Diarrhea	24	.02
57	N. S.	60	M	Absent	Absent	Absent	Absent	Diarrhea	—	—
58	O. J.	57	M	Present	Present	Present	Absent	Constipated	14	0

apparently recovered from the disease for over two years.

In a study of 24 cases of pernicious anemia, Stockton [17] observed that 18 were affected with gastric disturbances; while 6 were free of such disturbances, 10 were constipated, 8 had diarrhea, and in 6 there was an irregularity of the bowels. In 11 instances the liver was enlarged; in 13 it was not; 9 cases showed a dilatation of the stomach. In 13 instances there was an absence of gastric digestion, in 8 the gastric digestion was diminished, and in 3 it was fairly good. Five cases showed evidence of gastric catarrh. In 6 instances there was an absence of acid in the gastric contents, while the average of the total acidity varied around 10. In 3 cases free hydrochloric acid was present in traces; in all others it was absent.

Austin [18] found an absence of free hydrochloric acid, and of the ferments in his cases, while the gastric motility was diminished in most instances. He also noted an increase of urobilin in the urine and of stercobilin in the feces; occult blood was also observed in the feces. Of the 79 cases observed by Cabot,[19] only one presented hydrochloric acid in the stomach contents in any considerable quantity.

Our own observations extend over a series of 58 cases of pernicious anemia, in all of which gastro-intestinal symptoms were noted. Of the 58 cases there were 49 males and 9 females, the ages ranging between thirty and sixty-two years. In all of these cases complete blood examinations had been made, and only those have been included in this report in which the physical characteristics as well as the examination of blood left no doubt as to diagnosis. The symptoms manifested were loss of appetite, nausea, vomiting, indigestion (fullness, pressure, distention), diarrhea and constipation.

Loss of appetite was observed in 38 cases, nausea in 27, vomiting in 19, indigestion in 33, diarrhea in 20, constipation in 27, and irregularity of the bowels in 11. The liver was enlarged in 18 instances while in 40 it was not. Enteroptosis was present in 21 instances and atony of the stomach in 29. Gastric catarrh was present in 9 cases. The gastric contents were examined in 43 of the 58 cases. In 30 of these there was absence of gastric digestion (achylia gastrica). In 9 the gastric digestion was diminished and in 4 it was normal. In the 30 cases with absence of gastric secretion the total acidity ranged between 8 and 14. In the nine with diminished gastric secretion, the total acidity ranged between 22 and 46, free hydrochloric acid between 0.02% to 0.06%. In the 4 with normal digestion the total acidity ranged between 32 and 65, free hydrochloric acid between 0.11% to 0.16%. The gastric secretion was examined in five patients presenting an absence of free hydrochloric acid during the period of improvement in the state of the blood as well as of the general health; in none did the secretion return during the stage of apparent recovery. From a study of the 58 cases of pernicious anemia, it is evident that a large proportion of these cases are attended with gastro-intestinal disturbances as well as with an absence of gastric secretion; there is present an achylia gastrica in about 70% of cases and even in the stage of apparent recovery the gastric secretion does not return. In a smaller proportion of cases, 20%, there is a marked diminition of the secretion, and in a few instances, about 10%, it remains normal.

It is quite probable that the poison which produces the hemolysis is the same which is also responsible for the alteration in the gastric secretion.

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Reports of Societies.

THE NEW ENGLAND PEDIATRIC SOCIETY.

THE nineteenth meeting of the New England Pediatric Society was held on Jan. 27, 1912, in the Boston Medical Library. The following papers were read:

DR. ARTHUR A. HOWARD read a paper entitled,

THE IMPORTANCE OF MILK STATIONS IN REDUCING CITY INFANT MORTALITY,

in which he described the work of the milk and baby Hygiene Association.

DR. T. M. ROTCH: Dr. Howard is engaged in an exceedingly valuable work, and he is managing it admirably. His work, connected with the food and hygiene of healthy babies, will go hand in hand with what the hospitals have been endeavoring to carry out in connection with prophylaxis.

DR. F. B. TALBOT: I was very much interested in what Dr. Howard said about breast feeding and the increasing number of mothers who nurse their babies. I was told a short time ago that the surgeons in the Massachusetts General Hospital, some thirty years ago, used to ask in their histories, of persons who were going under operation, whether they had been breast-fed or not, as they considered those that were a better surgical risk than those who were not. The work of the Milk and Baby Hygiene Association is very valuable from the out-patient department point of view, because it gives the out-patient physicians opportunity to study and treat sick babies which would otherwise be taken up with the care of well babies.

DR. G. E. EMERSON: I think this work for infants so successfully carried on by the Milk and Hygiene Committee should be extended in a similar way to children up to fourteen years of age who are underweight and poorly nourished. Such children at present are brought to the clinic and mixed with sick patients and we have to spend a large part of our time in giving them instruction in hygiene and diet, which could be

given to them with a great economy of time and energy as a class instead of individually. Such children could be referred by the school nurses, by the Milk and Hygiene nurses and from the clinics, and report once a week to be weighed, their diet lists inspected, and the instruction followed up with the parents.

Dr. T. J. Eastman: About one and one-half years ago the Springfield Baby Feeding Association was established very much along the lines of this Boston institution, and as the result of careful study after one and one-half years we found that the most important part of the work is the instructive work in relation to the care and feeding of the babies. Quite recently various organizations have gotten together with the view of doing something in regard to improving the housing conditions, and the first important point which they discovered is the fact that the state laws, as they exist at present, simply apply to the fire safety of the houses; there is nothing in the state laws which in any way can compel a builder to look out for the interests of the health of his tenants as to fresh air, sunlight and general hygiene. Until that state law is changed, any laws which individual cities may try to put through are absolutely useless. On account of this a movement has been started by the Massachusetts Civic League to do something about that law, and it seems to me that this is a line of work which should go hand in hand with that of the milk stations. It is certainly a very valuable factor in the welfare of the infant that he should have a chance to have plenty of air and sunlight and be housed properly. An interesting fact came out recently in connection with the work of the probation officer in Springfield in connection with the youthful criminals. He made a chart of the city, and there were three distinct sections where the largest proportion of the youthful criminals resided, these sections being the three crowded slum districts of the city where the housing conditions were the poorest. This whole work, it seems to me, is very extensive and very broad in its scope.

Dr. A. B. Emmons, 2d: The members of the society may be interested to hear that within three weeks a meeting was held at the South End House to organize the pre-natal care in Boston, which Dr. Howard has mentioned, as being a part of his society's plan. There were something like fourteen different hospitals and institutions represented. This work was brought forward largely by the Women's Municipal League, who demonstrated its value by taking care of about one thousand women, among whom there were forty cases of threatened eclampsia. No case, however, developed into eclampsia owing to the prompt treatment which was received, the patient being sent immediately to the physician or hospital. The meeting was held with the idea of organizing the work, and it was voted to draw up rules in order to decide upon a standard which all these institutions might adopt in order that the various hospitals, settlement houses and nursing associations should co-operate in their work and not cover the same territory twice. It was shown that by this means the infants' work could be much aided by the instruction which the mothers received from the nurses, who became friends of the family and could thus give advice regarding the care of the infants and other children who were already in the household. In some instances it was found that the mothers so instructed were already seeking advice as to the care of those other children.

Dr. Howard, in closing: I was glad to have Dr. Rotch point out the fact that the withdrawal of well babies from the clinic gives the out-patient physician more time to devote to the sick baby, just as the conference physician is able to give all his attention to the well baby. Clinical and prophylactic work do not clash, but, as Dr. Rotch has said, "work together" for greater efficiency.

I was very much interested in Dr. Emmons' remarks concerning pre-natal work. I have already expressed my views as to the importance of starting the supervision of the infant with the pre-natal period.

Dr. Emerson's remarks about the conference for older infants and children is in accord with the attempt we are already making to establish a department which will take charge of babies whenever they are dropped by the association, the baby being cared for in a semi-supervised manner where they do not require the attention of a physician or nurse constantly or during early infancy. This work, I believe, should form an important part of the continuous chain safeguarding the child's welfare.

Dr. Geo. C. King, of Fall River, presented a paper entitled,

OBSERVATIONS ON THE INTENSITY AND ACIDITY OF THE URINE,

in which he described the methods used by Dr. Lawrence J. Henderson, of the Harvard Medical School, by which the acidity was determined by colorimetric methods. The concentration of the hydrogen ions was determined in this manner. It was found, in certain cases of acute disease, that the acidity of the urine was much more marked than in health and also that in certain cases of enuresis there was a very high acidity. When this acidity was neutralized by small doses of sodium citrate, the symptoms of enuresis were markedly improved, and in certain cases cured.

Dr. Richard M. Smith: I have been very much interested in following this work of Dr. King's, and I should like to report an experience of my own. These cases of enuresis cause a great deal of trouble, as we all know. A patient of mine, who has been under my care for over a year, a boy of three and one-half years, had been wetting the bed practically every night. For three or four months I had tried all the things I knew how to try without any cessation of the bed-wetting, and I finally told the mother that we would have to give it up until the boy was older. That was about six weeks ago. Three weeks ago I secured a specimen of urine and found that it was highly acid. I started the boy on potassium citrate, 4 gr. three times daily. The mother told me to-day that after taking the medicine for ten days the boy stopped wetting the bed, and for the past week, even without the medicine, he has not wet at all. I have had another case, with acid urine, where, after the giving of the potassium citrate, the condition was relieved, but whether it is going to continue or not, I cannot say. It seems to me that there is another important point which Dr. King only incidentally referred to, and that is, the relation of this question of acid urine to acute nephritis. This matter has been brought very notably to our attention by the work of Dr. Fisher. It seems to me that this method of finding acid in the circulation and in the body fluids is going to lead to rather definite confirmation of Dr. Fisher's contentions, in which case a tremendous advance in the study of nephritis has been made, or else it is going to disprove his hypotheses.

Dr. G. Praino: There is one point I should like to bring out with regard to acidity of the urine as applied to infants. I have noticed that, when a child was getting a modified milk containing a large percentage of sugar, the urine was highly acid, and that the diapers saturated with urine, if allowed to stay on too long, produced excoriations and superficial ulcerations which resisted treatment until the percentage of sugar was lowered.

Then in diabetes mellitus we get a highly acid urine too. At present I have two cases of diabetes mellitus under my care, and I keep the acidity of the urine low by giving 1 gm. of sodium bicarbonate three times a day.

DR. G. E. EMERSON: I have listened to Dr. King's paper with much interest, especially as he suggests so simple a remedy for this oftentimes obstinate affection. Last year I had six children with this affection report together at the clinic once a week. None of the usual remedies or directions had apparently any effect whatever on any one of them, although tried at various periods of time from two to five years. Four, however, made a complete recovery on attaining a normal weight by proper hygiene and diet with no drugs at all. As Dr. King's paper suggests, a return to a normal acidity on a return to a normal weight may explain their recovery.

DR. T. J. EASTMAN: I would like to ask Dr. King if he has applied this method to his cases of cyclic vomiting. I have had a case this last year of cyclic vomiting, which proved to be a case of chronic appendicitis, and she had another attack of vomiting four or five months after the operation. At no time has there been any acetone or diacetic acid in the urine, but almost all the time the urine is very highly acid and has been controlled with large doses of bicarbonate of soda.

DR. A. B. EMMONS, 2D: In speaking of enuresis there is one anatomical peculiarity, or anomaly, which seems to me worth while mentioning in this connection. Undoubtedly most of you know of it. The ureter, ordinarily coming down to the bladder, may have a division or branch which enters the urethra below the sphincter, with resulting involuntary leakage of urine. This is one of the rare anomalies, and in such cases you have enuresis in spite of any medical treatment.

DR. KING: These cases which I took for study and treatment came to the ordinary hospital out-patient clinic, and I made no selection until the cases of enuresis appeared, and those I followed only long enough to learn that you can get a definite cure of symptoms by the use of potassium citrate. A permanent cure can probably only be obtained by relieving the causes of high acidity — an excessive protein diet, and faulty metabolism being the chief factors.

(Answer to Dr. Eastman.) In the cases with high fever, the urine was highly acid and gradually decreased as the fever disappeared, and this condition also accompanied cases of faulty metabolism, so I believe the same would exist in the case which you cited, although the alkaline digestive wave might alter conditions somewhat.

'ACUTE SUPPURATIVE PERICARDITIS IN INFANCY. (Abstract.)

HANS BARKAN, M.D., and WILLIAM PALMER LUCAS, M.D., Boston.

The writers reported a very unusual case of suppurative pericarditis in an infant five months old. The unusual features of the case were that it followed none of the ordinary infectious diseases which usually precede suppurative pericarditis in infants. It was evidently either a primary infection or a secondary infection from the subacute intestinal infection or from the eczema from which the child was suffering, but from which it had been improving. They were able to find no cases of primary infection or pericardium in infants from the review of recent literature. The article appeared in full in the BOSTON MEDICAL AND SURGICAL JOURNAL for March 21, 1912.

DR. T. M. ROTCH: Dr. Barkan has brought up a very important subject, and I would especially draw attention to the practical use of the Roentgen ray in this class of cases. The younger the individual, the more important it is to determine whether a pericardial effusion is present and then to not delay paracentesis too long, for without any perceptible increase in the general symptoms sudden death at times occurs. Where a practitioner cannot have recourse to the Roentgen ray to aid him in his diagnosis, as frequently happens, it is well to bear certain facts concerning the differential diagnosis in mind. In certain cases the physical signs of a dilated heart and a pericardial effusion are almost identical with the exception that, as a rule, you do not have the enlarged heart intruding upon the fifth right interspace more than 2 or 3 cm.; on the other hand, in a great majority of cases, the effusion, when present, would be found there. It is very unusual for pericardial adhesions to be present in young infants and, therefore, the topography of the differential diagnosis between a dilated heart and a pericardial effusion is much more readily made out than at a later period when the lines of percussion are obscured by irregular adhesions. By a series of laboratory experiments with melted cocoa butter, which I have made in the pericardium in quite a large number of infants, I determined that the heart is not floated up by the effusion, but that it is seemingly so. This apparent change of position of the impulse of the heart is not produced by the change of position of the heart itself, but by the ordinary impulse being obscured by the effusion. Just above the point of the usual impulse of the heart and close to the left edge of the sternum the effusion forms a very thin layer so that the impulse of the ventricle is perceptible at this point and thus simulates the apex impulse.

AN EXPERIMENTAL STUDY OF MEASLES IN MONKEYS (Abstract.)

WILLIAM PALMER LUCAS, M.D., and EDWARD LEWIS PRIZER, M.D., Boston.

In this paper the writers reviewed the recent experimentation with measles, and concluded by giving their findings in the blood of three monkeys successfully inoculated for measles. They concluded that during the pre-eruptive stage of the disease there is a leucopenia involving the polymorphonuclear neutrophiles, the lymphocytes and the large mononuclear leucocytes. This leucopenia develops in from five to ten days after inoculation and may be preceded by a transient lymphocytic and large mononuclear leucocytosis, which is probably lacking or only poorly developed in the severe form of the reaction, but is strongly developed in less severe cases.

They agreed with the findings of Anderson and Goldberger as to the temperature and infectivity of blood. They also brought out the fact that Koplik spots were also found in monkeys, this being the first reported finding of Koplik spots in monkeys.

DR. M. J. ENGLISH: With regard to the presence of Koplik's spots which Dr. Prizer and Dr. Lucas discovered, there seemed to be no question about their being the typical spots found in human beings. They were in considerable numbers and showed all the characteristics of those in human beings, that is, rose-reddish spots with blueish-white specks in center. They had a normal monkey there as a control, and the mucous membranes of the three monkeys were constantly looked over for areas of stomatitis that might simulate Koplik's spots, but they confirmed in every way the spots in children and adults, and there is no question but that they were Koplik's spots. In fact, Dr. Lucas, after talking with Dr. Place, asked me to see them before they had disappeared, and I agreed perfectly with their observations. It is very striking that these spots appeared in the

monkeys at exactly the same time they do in human beings, ten or eleven days after exposure, and it seems to bear out the belief that in measles, in marked contrast to scarlet fever, we have a cycle of development. In scarlet fever without any question, there is a marked difference in the incubation period, a tremendous difference in the opinion of different men concerning this point. This work makes it possible to prove points about which there was much difference of opinion in regard to the stage of infection of human beings, and proves that measles is contagious from the very beginning of the disease.

Book Reviews.

Handbook on Mental Examination Methods. By Shepherd Ivory Franz, Ph.D., Scientific Director and Psychologist, Government Hospital for the Insane; Professor of Physiology, George Washington University. New York: Journal of Nervous and Mental Diseases Publishing Company. 1912.

The use of psychology in explaining the mechanism of mental disease has passed the academic stage and is no longer solely exemplified by a chapter in textbooks on insanity. Not only the student of psychiatry, but the progressive alienist, must nowadays put psychological knowledge and training to practical use as a part of his equipment for the analysis, diagnosis and treatment of the disease.

It is, therefore, helpful to have at hand a practical handbook like this of the various psychological tests of sensation, movement, speech, attention, memory, association, general intelligence, etc., that are required in psycho-analysis. The psychology of these states is given clearly and with sufficient completeness for the purpose. The tests are also simple and well selected. Complex methods requiring elaborate apparatus are wisely discarded as superfluous. The scheme of general examination of mental cases is admirable. It is thorough, omitting no essential detail, and at the same time is free from many of those refinements of scientific investigation which have too indirect a bearing to be of practical value.

Diseases of the Genito-Urinary Organs and the Kidney. By Robert H. Greene, M.D., Professor of Genito-Urinary Surgery at the Fordham University, New York; and Harlow Brooks, M.D., Assistant Professor of Clinical Medicine, University and Bellevue Hospital Medical School. Third revised edition. Octavo of 639 pages, 339 illustrations. Philadelphia and London: W. B. Saunders Company. 1912.

This is the third edition of this book which has appeared since its publication five years ago, and it evidences the real place the work has taken in the minds of American surgeons and students. This present edition is essentially the same book in scope and arrangement as the preceding editions, but it has been revised and brought up to date by the authors, who have succeeded in accomplishing this without increasing the bulk of the work by more than forty or fifty pages. They have added a paragraph on "The Value of X-ray in Diagnosis"; they have added a new operative technic here and there; they have described the newer tests for renal function and, in short, they have, without increasing the scope of the book, made its chapters a more complete exposition of the subjects they discuss. The book is more valuable than before.

Fatigue and Efficiency. A Study in Industry. By Josephine Goldmark, Publication Secretary National Consumers' League. New York: Charities Publication Committee. 1912.

This large volume, representing work done during the past five years under the Russell Sage Foundation in co-operation with the National Consumers' League, consists of two parts. The first is a study of the nature of physiologic and of pathologic fatigue and of their relation to modern forms of technical industry. The second contains the substance of four briefs, by Miss Goldmark and Mr. Louis D. Brandeis, in defense of women's labor laws, embodying "the world's experience upon which legislation limiting the hours of labor for women is based." The second part is thus essentially the evidence and the forensic material upon which the first is founded.

In an introduction to the volume, Prof. Frederic S. Lee, of Columbia University, comments particularly on the paralyzing effect of fatigue on human efficiency, and points out the lamentable failure of modern industrialism to recognize and adopt the teaching of physiology in this respect. To correct this failure is the purpose of Miss Goldmark's work. From a lay point of view she presents, with admirable lucidity, the physiologic, economic and legal aspects of the problems of fatigue and their correlation with those of industrial efficiency, particularly in their bearing on women's work. In doing this, however, she has done far more than a piece of special pleading: she has presented the case of laboring humanity. She has considered fatigue not solely from its physical but from its intellectual and spiritual relation to the welfare of the individual and of the race. Her work is an eloquent argument for the true principle of leisure, such an essential element in the highest human progress, so lamentably absent from the life of to-day.

What to Do in Cases of Poisoning. By William Murrell, M.D., F.R.C.P. Eleventh edition. New York: Paul B. Hoeber. 1912.

The number of editions which this little book has had since its first appearance in 1881 is testimony to its merit and popularity. The present edition has been thoroughly revised and many new poisons have been added, including veronal. The book is very thorough, yet compact, and the author's forcible style and piquant humor make what might well be a dull subject entertaining as well as instructive.

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DRUG HABITS AND THE MEDICAL PROFESSION.

AMONG the singular phenomena to be observed in the human species is the tendency of many of its members to the habitual use of various drugs. This tendency is not a product of recent evolution, though some methods of its manifestation are of comparatively late origin; but it appears to have been inherent in the earliest peoples of whom we have historic record. It is present in persons of all races, ages and environmental conditions; in the most highly educated and refined Caucasian as well as in the almost animal aborigines of the jungle. Indeed the two drugs that have been always and are still most extensively thus used are the oldest two drugs in the pharmacopeia, alchohol and opium, knowledge of which extends back into the prehistoric days beyond the dawn of medicine.

The psychology of drug addictions seems relatively simple. Every one of the drugs whose use becomes a habit has a physiologic effect at first pleasing. In spite of the unpleasant subsequent effects, this primary pleasure leads to repetition of the indulgence, on the instinct by which all animals seek to repeat pleasurable experience. Once the habit is formed, only the cumulative and analytic experience of the individual or of the race, with gradual appreciation of the disagreeable and detrimental results of the practice, can induce its discontinuance. Only thus are such habits ultimately abandoned by individuals and by society.

The principal drugs which are thus employed may be classified into three groups according to the degree of danger which their habitual use involves. In the first and most dangerous group belong opium, its alkaloids and other derivatives, hasheesh and cocaine. The second group consists of alcohol in its various forms. The third group comprises the relatively harmless tobacco, tea and coffee.

It may be noted that, although mankind has as yet emancipated itself from none of these drugs (indeed the use of them all is probably on the increase), yet human society has progressively disapproved of their habitual use in proportion to their dangerous qualities. All the members of the first group are now universally recognized as baneful, and their use, except medicinally, branded as a pernicious vice. Alcohol, until within little more than a century regarded almost as an essential beverage, whose use was no more to be disapproved than that of milk, is now in a stage of transition from popular favor to popular condemnation. Though still the most extensively used of the habit-forming drugs, its physical, social and moral dangers are clearly realized by the majority of mankind, and the number is steadily growing of those who disapprove its internal use except as a medicine. The field of its therapeutic application is also narrowing, since it is now recognized that many of its supposed advantages as a stimulant are fallacious. Probably its habitual use as a beverage will long persist, particularly among races whose knowledge and inhibitions are sufficiently developed to enable them to avoid its more disastrous consequences. Those who desire its ultimate abolition must expect to attain their end by slow diffusion of popular education rather than by more spectacular and drastic repressive methods.

Finally, of tobacco, tea and coffee, it may be said that their use still has almost the complete sanction of intelligent and respectable custom. In moderation the physical damage which they may produce is practically inappreciable; and even in excess that damage is seldom serious or permanent, and never involves the moral degradation and perversion which attend the excessive use of alcohol or any habitual use of drugs of the first group. Humanity has never yet completely ridded itself of any drug habit, and probably the use of one or all of this domestic trilogy will persist as "the last infirmity of noble minds" until long after opium, cocaine, hasheesh and alcohol have been banished from the face of the earth, until the dawning of a millenium whose felicities few can conceive.

A serious word should be said of the grave responsibility of the medical profession in its attitude towards the admittedly dangerous drug habits and in its efforts to eradicate them and

better still to prevent their acquisition. A recent popular article by Mr. Charles B. Towns, in the August number of the *Century Magazine*, on "The Peril of the Drug Habit," points out the fact, known by most physicians, that among occidentals the morphine habit is often acquired as a result of the continued use of medical prescriptions containing the drug, and the cocaine habit from the use of patent medicines and beverages in which cocaine is an ingredient. Against the latter of these contingencies vigorous measures have already been taken under the pure food and drug laws, and against the former every physician should guard by conscientious care in his therapeutic use of morphine and watchfulness as to its after continuance by the patient. Above all should the physician, in his capacity as a teacher, embrace every opportunity of pointing out the physical damages and dangers of the more deleterious habit-forming drugs, since the majority of mankind are quite as likely to abandon or to avoid forming a habit because it is injurious or foolish as because it is sinful. After all, perhaps the greatest evil of the major drug habits is that the physical and moral deterioration which they induce render their subject temporarily or permanently unfit for responsible and efficient service; and the maintenance of human fitness at its maximum is one of the ultimate functions of curative and prophylactic medicine.

WORK OF THE NEW YORK HEALTH DEPARTMENT.

In the latest number of the *Monthly Bulletin* of the City Health Department of New York is given a comprehensive review of some of the more important work accomplished by the department since Jan. 1, 1910, covering approximately the first half of the present municipal administration. This period has seen the establishment of two successive low records in the annual death-rate of the city, namely, 15.98 per thousand of the population for the year 1910 and 15.13 for 1911. A continuous decrease in the death-rate has, indeed, accompanied the whole development of the present system of sanitation. In 1866, the year in which the department was organized, the death-rate of New York City was 36.31, and for the first ten years thereafter it averaged 26.61. Then the figure fell continuously during succeeding decennia, reaching the rate of 18.84 for the ten-year period of 1899–1908, and falling to 16.00 for the year 1909. Comparing the death-rate of 1910 with that of the first decennium under the present organization of the Health Department, we find a decrease of about 40%, while, in comparison with the rate for 1866, that for 1911 shows a decrease of over 50%. Without exception, the diseases in which a reduction of mortality has been effected belong to the class of infectious diseases, while of those diseases in which there has been an increase in fatality, only one, pneumonia, belongs to that group; and as to this, a large part of the increase is only apparent, due to the change in the designation of deaths formerly ascribed to bronchitis. "Generally speaking," the writer comments, "a study of the vital statistics of New York City or any community can hardly fail to indicate the enormous advances achieved by sanitary science in the past fifty years. Since the full benefits of the methods and practice of sanitary science are available to any well-organized community which will make the necessary expenditure, it may be truly said that, within certain limitations, the inhabitants of any city have it largely within their power to determine the degree of healthfulness their city shall have."

In the review of the two years' work of the department there are then taken up in succession various features which have already been noted in the columns of the Journal; such as milk inspection, pasteurization, grading of milk, food inspection, exposure of foods, sale of narcotic drugs and wood alcohol, regulation of the sale of eggs and destruction of all condemned canned goods. A bill reducing the standard of total milk solids from 12% to 11.50%, which was passed at the 1910 session of the legislature, was unsuccessfully opposed by the president of the department at a hearing before Governor Hughes. "This bill," it is stated, "was drawn in the interests of owners of Holstein cows, a breed which gives milk of a somewhat lower percentage of milk solids than that from other cows. Considered from the point of view of the milk consumer, such a reduction of the standard is an actual stimulus to adulteration, since it makes it legally possible for unscrupulous dealers to impair the food value of milk, normally good, by the addition of water or lower grade milk, in order to bring it down to a point just within the legal standard. How inevitable such a result was is shown by the records of the department. Certain dealers whose records under the old law regularly showed that their milk was just within the required standard of 12% are now dispensing

milk which, on repeated analysis, is shown to be just within the lower standard of 11.50%." New emphasis has been given to the matter of prosecution. Realizing that the department, with the small force of 30 inspectors at its command, could never adequately inspect the 21,698 retail and 5,384 wholesale establishments in the city where food is prepared and sold, the health commissioner determined early in 1910 to make prosecutions more rigorous. The former practice of mere condemning food which was found unfit for use in stores and restaurants had not proved very effective, since the offender suffered only the loss of the material condemned and was soon ready to take chances again; but when the inspectors began actively to make arrests and bring the offenders before the Court of Special Sessions, each proprietor of a food establishment was given a forcible incentive to become his own inspector. The judges of this court have rendered all possible assistance to the department by their conscientious consideration of these cases, and it is believed that great improvement in the control of the general food supply of the city has resulted.

Under the head of General Sanitary Inspection, reference is made to the smoke nuisance, smoking automobiles, noise from motor boats, the prohibition of spitting and smoking in public places and of public drinking cups and common towels, regulations for storing and transporting manure, the suppression of odors from slaughter houses, improved regulations for lodging houses, and suppression of mosquitoes. The campaign against mosquitoes has been most vigorously carried on in the borough of Richmond (Staten Island), which has been more particularly infested with these pests. To overcome a special source of the nuisance not previously covered by the Sanitary Code a regulation was adopted in May, 1911, requiring that roof-tanks be kept covered with a tight-fitting cover or with an extra fine mesh screen. In this report nothing is said in reference to the suppression of flies, but early this summer a special corps of police was, with the consent of the mayor, detailed for this purpose. Their principal duty is to see strictly enforced the ordinance requiring that all garbage cans awaiting emptying by the Street Cleaning Department be kept covered.

Under the head of Infectious Diseases it is stated that, in general, the number of cases of contagious disease reported was less in 1910 than in 1911. In the first of these years 16 cases of smallpox occurred, and in the second, 15 cases. In 1911, 103,644 vaccinations were performed by the department. In November, 1910, acute anterior poliomyelitis was declared a communicable disease and included among the affections required to be reported by the medical profession. Suitable isolation is now advised in all cases, a minimum period of quarantine of six weeks has been established, the exclusion of other children from school is enforced, circulars of information are distributed in every house in which a case occurs, and disinfection of bedding and fumigation or renovation of premises are ordered. For the first time since 1892 cholera appeared in the city proper in 1911, but was limited to three cases. With the approval of the Medical Advisory Board of the department the regulations requiring the reporting of all cases of venereal disease (with the omission of the name and address of the patient optional in private cases) were adopted on Feb. 20, 1912. All cases of typhoid fever occurring on the Croton watershed are now immediately reported and carefully supervised, and in order to secure better protection of the Croton water supply a committee has been formed, consisting of representatives of the Corporation Counsel and of the Departments of Water Supply and of Health, which exercises summary power to abate any nuisance found on the watershed which threatens the pollution of the water supply. The following special advisory committee on administrative control of typhoid fever has been appointed this year: Professors George C. Whipple, Harvard University; William T. Sedgwick, Massachusetts Institute of Technology; C.-E. A. Winslow, College of the City of New York; Thomas W. Hastings, Cornell University; Daniel D. Jackson, director of laboratories of the Department of Water Supply; and Drs. John W. Brannan, Alexander Lambert and Herbert D. Pease, of New York. Dr. Hastings, it is stated, was designated as a representative of the committee on public health, hospitals and budget of the New York Academy of Medicine, which has co-operated actively with the Health Department. The report naturally includes a summary of the increased antituberculosis activities of the department and of the school-children inspection and infants' milk station work.

In regard to examinations in women's courts the department has had a rather curious legal experience. In 1910 the legislature enacted what is known as the Page law, which reorganized the inferior courts of criminal jurisdiction in New York City and one section of which required that every woman convicted of vagrancy or

violation of the statutes regarding prostitution should be forthwith examined by a woman physician of the Health Department, in order to determine whether she were suffering from any communicable venereal disease. This work was begun Sept. 1, 1910, but had to be discontinued on Nov. 26, because the Supreme Court declared the section of the act requiring such physical examination unconstitutional. On May 11, 1911, however, the Appellate Division of the Supreme Court reversed this decision, and on May 18, the examinations were resumed. Then, one month later, they had to be discontinued again, as the Court of Appeals, the tribunal of last resort, decided against the constitutionality of the clause.

THE UNIVERSITY AND THE PUBLIC.

Universities in the past have been thought to be out of touch with human needs and ignorant of the urgent problems of their generation. Their scholars have been regarded as unpractical theorists unfit to advise the legislator concerning the evils of the body-politic, or to teach the man of affairs anything which it is worth his while to know.

This criticism was probably deserved in part; for the scholar loves knowledge for itself alone and sometimes shirks the duty of sharing it with the world. The "practical man," on the other hand, passed by the college without discovering what might there be learned, because he could not see the immediate application of the knowledge which he heard about.

Gradually at first, but more rapidly year by year, this attitude toward science has changed. The world to-day waits at the door of learning, demanding science and education, more education and more science. Chemistry, engineering, physics and metallurgy are becoming the bone and sinew of industrial life. At the breakfast table now we read the forecast of the weather and of athletic sport, each based on a multitude of data carefully compiled in scientific fashion, and even the farmer, most conservative of men, invokes science to the aid of crops.

Some years ago an eastern prince, a progressive of progressives, appealed to a Western university to send him experts on international law, and economics who should be able to reinstate his tottering kingdom. The experts succeeded well. Now recently, a university, long at odds with the community wherein it stood, made overtures of friendliness to the same, offering service in return for favors, and the city gladly granted concessions for the privilege of calling on the men of learning for advice on certain questions of public policy. "How satisfactory," said the world, "and why was not this done before?"

Universities, too, evidence an increasing sense of responsibility to the public, as a whole, by offering, in addition to classical and theoretical instruction, courses in applied science of a very practical kind.

Similarly, medical instruction is being moulded to provide not only practitioners and teachers of medicine, but also investigators and experts in public sanitation and prevention of disease. The change is coming in response to a demand for modern health officers. The need for such is being felt in widely scattered places throughout this country. The public wants men highly trained for special work; it applies to the university; and the university responds by training them.

A COMPENSATED AFFLICTION.

In the *Journal of the American Medical Association* for July 6, a case of unique visual power [1] was described by Dr. George M. Gould. The biographic dictionaries tell of men of extraordinary intellectual gifts: as for instance, when Macaulay could memorize a whole short poem at a single reading, could read a sentence while others could read but a line, could read a paragraph in the time it took others to read a sentence — and would afterward bore a dinner table to death telling about what his gigantic mind had absorbed. But the case in question was altogether different. The patient had amazing intellectual gifts, but he had in addition a lesion of the right macula lutea, which together with these gifts made it possible for him both to read at a glance, and to retain in his memory the contents of a whole page. Thus it was not that he could do better what other literary men could do well; his accomplishment was unique and dependent upon a physical abnormality.

In middle life the macular region of the right eye was destroyed through a choroiditis resulting from eyestrain. The fixing part of the right retina was obliterated, leaving in its place a black, disorganized, pigmented space. The normal left eye continued the usual function of macular, central vision and did it perfectly. By long subconscious exercise, the healthy right ocular zone surrounding the diseased macula was

[1] Reading a Page Instantaneously. Jour. Am. Med. Asso., July 6, 1912, p. 24.

educated so well and so widely that it could, when unmoved, receive and transmit to the cerebrum the image of the entire page, except that part falling on the central portion which had been destroyed. This latter portion was naturally supplied to perfection by the left macula. It was as if two saucers were superimposed, the one upon the concavity of the other — the normal zone of macula or central fixation of the sound left eye exactly covering and completing the pattern, and acting for the space destroyed by disease in the right eye. The cerebral visual center thus received the entire composite photograph of the object seen, made complete by the complementive interaction and unitizing function of the two eyes.

One may wonder how the normal portion of the right retina became so sensitive and reactive toward its periphery. Here is compensation such as nature is constantly achieving; as when a fibula becomes enormously developed to compensate for a tibia necrosed or destroyed by traumatism. Ordinarily in the human eye the accuracy and perfection of imaging in the more outlying retinal regions lessens with every degree traveled toward the periphery. But some relative accuracy is retained in all parts; and such accuracy is capable of increased education. One must emphasize that for the reduplication of such a case as that reported, there must be not only the macular lesion, but also the very unusual mentality, and above all the phenomenal memory which were normal to this gentleman.

DINNER TO DR. SHATTUCK.

On Tuesday evening, June 18, 1912, there was given at the Algonquin Club, in Boston, a dinner in honor of Dr. Frederick C. Shattuck, upon the occasion of his retirement from the Jackson professorship of clinical medicine in the Harvard Medical School. At this dinner there were present a number of Dr. Shattuck's teaching associates and former house-officers at the Massachusetts General Hospital, some forty in all. Dr. William S. Thayer, professor of clinical medicine at the Johns Hopkins Medical School, acted as toastmaster, and introduced the speakers, among whom were Dr. Frederick Forschheimer, of Cincinnati; Dr. F. P. Kinnicutt, of New York; Dr. Richard C. Cabot, of Boston; Dr. Nathaniel B. Potter, of New York; Dr. Henry Jackson, of Boston; Dr. Richard Dexter, of Cleveland; and Dr. Charles H. Lawrence, Jr., of Boston. Dr. Jackson, in his address, formally presented to the Harvard Medical School a portrait of Dr. Shattuck, by Mr. Walter Decamp, in behalf of Dr. Shattuck's former house pupils and associates in the clinical department. The portrait, which will hang in the Faculty Room, was accepted in behalf of the school by Dr. William H. Bradford, dean and emeritus professor of orthopedic surgery. Dr. Shattuck spoke also in his wonted vein of felicity and humor. The occasion was one of the greatest interest and pleasure to all those present, who were thus afforded delightful opportunity to honor and to enjoy again the rare companionship and inspiration of their teacher, colleague and friend.

SUDDEN DEATH OF DR. RICHARDSON.

It is with the profoundest regret that the medical profession has learned of the sudden death of Dr. Maurice H. Richardson on the morning of July 31. The shock of his loss is one that will be felt by a very large number of persons who had known and sincerely loved him. An appropriate obituary notice of Dr. Richardson will appear in a later issue of the Journal.

MEDICAL NOTES.

A British Centenarian. — Mrs. H. Proctor, who died on July 7, at Painswick, England, is said to have been born on April 13, 1812.

A Living British Centenarian.— Mrs. Dinah Rogers, of St. Cleer, England, now an inmate of the Liskeard Workhouse Infirmary, is locally reputed to be one hundred and two years of age.

London Death-Rates in June. — Statistics recently published show that the total death-rate of London in June was 11.6 per 1,000 living. Among the several districts and boroughs, the highest rate was 19.1 in the old city of London, and the lowest was 7.2 in Hampstead, an open suburb on the north.

A Prolific Ancestress. — Mrs. Catherine Teach, who died last week in Fairfield, near Pontiac, Ill., at the age of ninety-one, is said to be survived by 111 direct descendants, — nine children, fifty grandchildren, fifty-one great-grandchildren, and one great-great-grandchild.

International Association for Scientific Perfection. — The ninth annual congress of the International Association for Scientific perfection, under the high patronage of the French government, will take place from Aug. 3 to 31 in the Balkans, in Turkey, and in Greece.

"The congress will be opened in Evian-les-Bains or Thonon-les-Bains (Lac de Genève), and will be continued in the following order: Venise (via Simplon), Trieste, Grottes d'Adelsberg, Agram, Belgrad, Descente du Danube, Passes de Kazan, Portes de Fer, Bucarest, Sofia, Constantinople, Mytilène, Smyrne, Athènes, Palère, Eleusis, Corynthe, Olympie, Corfou, Bologne, (via Brindisi). The last meeting will be held at Aix-les-Bains."

The general-secretary of the congress is Dr. Ghislain Houzel, of Paris.

Summer Registration in German Universities. — Report from Berlin on July 27 states that in the twenty-one German universities the total number of students matriculated for the summer semester of 1912 is 56,560, of whom nearly 3,000 are women. The largest number is 12,508 at the University of Berlin. The total number of students in the corresponding period of 1911 was 54,230. These figures, however, should not be compared with those of American universities, since part of the regular course of German universities falls in the summer.

Destruction of an Irish Sanatorium. — Report from Dublin states that on July 22 at Lucan, a village about seven miles west of that city, a nearly completed tuberculosis sanatorium erected by the Vicereine Lady Aberdeen and the Women's National Health Association, of which she is president, was demolished by a mob of local residents, who have opposed the institution from its inception. This wanton and egregious act of vandalism seems particularly heinous and unfortunate, and tempts citation of the scriptural apologue about such as rend their would-be benefactors.

The British National Insurance Act. — In the issue of the Journal for July 18, we commented editorially on the provisions of the British National Insurance Act, which has recently gone into effect in the United Kingdom. Report from Liverpool states that on July 23, at the annual meeting of the British Medical Association in that city, a resolution was passed refusing to accept office under the Act until the government guarantees physicians the annual amount demanded for medical attendance on each person insured. Sir James Barr, the newly elected president of the Association, is said to have characterized the Act as "the most gigantic fraud perpetrated on the public since the South Sea Bubble."

Revised Figures of British Census. — The first volume of the detailed report of the British Census of April 2, 1911, was published in London on July 25, 1912. According to its revised figures, the total population of England and Wales at that census was 36,070,492, of whom 18,624,884 were females, and 17,445,608 were males, showing an excess of 1,179,276 females. This preponderance of women over men has steadily increased since 1821, and is now exceeded, among European countries, only in Norway. In British hospitals the number of patients of the two sexes is nearly equal, but among the inmates of lunatic asylums the proportion is 1,140 women to 1,000 men, considerably higher than the sex-ratio of the population, which is approximately 1,067 to 1,000.

Progress of the Plague in the West Indies. — A press report from Washington, D. C., on July 22, states that the total number of cases of bubonic plague in Porto Rico to that date was 42, with 26 deaths. No new cases have been reported in Cuba since July 22. At Havana 3,015 rats are said to have been killed and examined, but none has been found infected. Report from New Orleans, La., states that on July 27 two rats in that city were found infected with *bacillus pestis*. Report from Port of Spain, Trinidad, on July 26 states that no more cases of plague have been reported there, and that clean bills of health are now being issued to all vessels leaving that port.

Medical Inspection of Schools in the United States.— In the current issue of the *National Municipal Review* is an article on "The Medical Inspection of Schools in the United States," by Dr. Luther H. Gulick, of the Department of Child Hygiene of the Russell Sage Foundation, in which he says:

"Medical examination of schools and scholars, especially in this country, is still in the experimental stage. There are still many questions open for discussion — much room for improvement regarding our present methods of examination and administration.

"It is a distinct specialty, involving wide training, accurate and rapid diagnosis, coupled with great skill in dealing with social conditions, parents, teachers, school boards and the like. And yet this work is generally intrusted to a young and inexperienced doctor who accepts the position simply as a preliminary step in working up his medical practice. He does not devote to the study the concentrated attention that he would give to a permanent career. This is because

the salaries paid to medical school inspectors in America are absurdly small. In England these salaries are sufficiently adequate to enable men and women to look forward to this work as affording scope for permanent occupation."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, July 30, 1912, there were reported to the Board of Health of Boston the following cases of acute infectious diseases. Diphtheria 18, scarlatina 6, typhoid fever 8, measles 28, smallpox 0, tuberculosis 52.

The death-rate of the reported deaths for the week ending July 30, 1912, was 13.91.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday noon, July 27, 1912, was 149, against 180 the corresponding week of last year, showing a decrease of 31 deaths, and making the death-rate for the week, 10.79. Of this number 79 were males and 70 were females; 162 were white and 9 colored; 88 were born in the United States, 60 in foreign countries and 1 unknown; 23 were of American parentage, 110 of foreign parentage and 16 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 22 cases and 0 deaths; scarlatina, 5 cases and 0 deaths; typhoid fever, 5 cases and 1 death; measles, 36 cases and 1 death; tuberculosis, 49 cases and 18 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 13, whooping cough 2, heart disease 21, bronchitis 1. There were 7 deaths from violent causes. The number of children who died under one year was 32; the number under five years, 45. The number of persons who died over sixty years of age was 39. The deaths in hospitals and public institutions were 54.

PROGRESS ON THE FORSYTH DENTAL INFIRMARY.—Work is rapidly progressing on the building of the Forsyth Dental Infirmary, now under process of construction in the Fenway, Boston. It is expected that the building will be roofed over this fall, completed by the first of the coming year, and dedicated late next spring.

RECENT HOSPITAL BEQUESTS. — A decision by the Supreme Judicial Court last week terminated a long-standing contest over the will of the late William Litchfield, of Lexington, Mass, who died on March 4, 1904. This decision makes effective a number of bequests to Boston institutions of medical charity as follows: to the Massachusetts General Hospital, the Massachusetts Homeopathic Hospital, the Kindergarten for the Blind, the Children's Hospital, and the Cullis Home for Consumptives, $5,000 each; to the Boston Lying-in Hospital and the New England Hospital for Women and Children, $3,000 each.

MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH. — A quarterly meeting of the Massachusetts Association of Boards of Health, held last week at Galloupe's Island, was attended by about seventy members. The local quarantine station was inspected, and an address was made by Dr. Mark W. Richardson, secretary of the Massachusetts State Board of Health, on "Public Health Legislation Proposed and Enacted in 1912." Particular comment was made on the abolition of the common roller towel, the legalization of free antityphoid inoculation, and the defeat of the anti-vaccination bill.

THE KINEMATOGRAPH FOR PUBLIC EDUCATION IN HYGIENE. — A unique plan of presenting to the public information about health and the prevention of disease is being used by the Boston Association for the Relief and Control of Tuberculosis, in co-operation with the motion picture theaters.

The Association has in its employ a trained lecturer who devotes his whole time to presenting at each performance in a motion picture theater a seven-minute lecture illustrated with 31 colored slides. This lecture has already been produced 235 times in 22 theaters and has been listened to by a total of over 97,000 persons. In addition to this, over 22,000 health circulars have been given out at the exit of the theaters. These lectures have been unusually well received by the audiences, and the management of the theaters have been very glad to co-operate in this method of presenting educational material to the public. Managers of several theaters have noticed that spitting on the floors has almost ceased.

The Secretary of the Association, Seymour H. Stone, says "several of the managers have suggested that a series of lectures of this kind be given next year in the theaters," and states further that managers from other cities, notably Providence, R. I., and Salem, Mass., as well as some of the smaller cities in greater Boston, have requested that the lecture be given in their localities.

IMPROVEMENT OF THE NEPONSET RIVER. — During the past week plans have been matured by the Massachusetts State Board of Health for

the Neponset River improvements authorized by the Legislature in 1911. It is expected that work will be begun next month and completed by Nov. 1, 1913, at an expense of approximately $150,000. The purpose of the work is to improve the sanitation of the river basin by draining and reclaiming over 2,000 acres of meadow land now neither arable nor habitable and thickly infested with malaria-bearing *Anophelides*. The ground was surveyed by engineers of the State Board of Health last winter, and the plan of operation has been drawn essentially in accordance with their findings and recommendations.

"Briefly, that plan is to deepen and straighten the channel from Pleasant street in Norwood to the dam of the Mattapan Paper Mills at River Street, in Hyde Park, which is a distance of a little more than twelve miles, following the present crooked course of the channel. A score or more of the bends in the channel are to be straightened by digging an entirely new ditch and filling up the curves to a surface level. In some places, practically 5,000 feet of the present channel will be filled up because of its curve and about 1,000 feet of new channel will take its place. By the elimination of such curves the channel between the points mentioned will be shortened by nearly a mile.

"Tributary streams are to be adjusted in accordance with the new channel alignment. The contract provides for dredging under all the railroad bridges, private bridges and foot bridges which cross the river. In a general way the excavated material may be dumped on low land bordering on the river and within 200 feet of its banks, or on the banks of any tributary. In a few instances, where sections of the former channel are cut off by straightening, the abandoned pieces may be used as outlets for tributary streams into the new river channel, but in other places such pieces are to be filled to grade with material taken from the old river bed or from new cuts. All this material whether deposited upon the meadows or on the grounds within 200 feet of the river bank is to be levelled off so that it will not stand more than one foot above the original level, and it will be left with an even surface without hollows where water may collect. Little drainage channels are to be cut through this filling as the respective land owners, or the state engineer, may direct, though not oftener than 200 feet.

"A fine river bottom will be established, deep enough to drain the meadows in the wet seasons and to keep them dry during the summer. All the bridge foundations will be left in as strong a condition as they are today. The Norwood sewage filter bed outlets are not to be disturbed. The channels of Traphole Brook are to be excavated near their outlets to adjust them to the new river channel. The channel of the Canton River, which enters the main stream just above Neponset Street, is to be reconstructed for a distance of several hundred feet from its mouth.

"Along the river there are a number of industrial plants which have been emptying polluting waste into the channel. Efforts have been made for years to stop this, as it contributes largely to the foul air which rises from the meadows in the hot season, and some of the manufacturers have made provisions for taking care of the waste. Many of them, however, still drain into the channel and the State Board of Health has reported all of these to the attorney-general. They will be stopped, if it is possible, from continuing to pollute the river after it has been dredged."

The project, as thus outlined, appears well conceived and designed, and when executed should prove of great hygienic, economic and artistic value. It is an example of the enlightened works of public utility which form a legitimate and desirable part of the function and service of health boards to the community.

NEW YORK.

Hospital Bequests. — Among the charitable bequests in the will of the late George Strause, of New York, are $250 each to Mount Sinai Hospital, Lebanon Hospital, the Montefiore Home and Hospital for Chronic Invalids, the Hebrew Infant Asylum, and the Home for Aged and Infirm Hebrews.

Labor Unions and Public Hygiene. — With a view to enlisting the co-operation of labor unions in the efforts of the State Health Department to diminish disease the commissioner has appointed Michael J. O'Brien, a labor leader of Rochester, as a special representative of the department to visit labor organizations throughout the State and explain its methods of work. He is also to arrange for meetings of such organizations to be addressed by special lecturers.

New Hospital in Brownsville. — The Brownsville and East New York Hospital Association has just purchased, in the Brownsville section of Brooklyn, a plot of land comprising fifteen city lots on which to erect a hospital, at a cost of $100,000. Brownsville, which is a thickly populated Jewish community, has at present only a small branch hospital, quite inadequate to its needs, and has as yet been unable to obtain the desired hospital facilities from the city.

Brooklyn Disciplinary Training-School. — At the same session the board authorized the purchase by the city of a farm of 203 acres in the village of Melville, Suffolk County, Long Island, for the new home of the Brooklyn Disciplinary

Training School. The price of this is $72,475, but the buildings to be erected on it will eventually cost $1,000,000.

PENALTY FOR ILLEGAL PRACTICE OF DENTISTRY. — On July 20, in the Court of Special Sessions, José M. G. Kukay, after pleading guilty to the charge of practicing dentistry without a license, was sentenced to three years imprisonment in the penitentiary and to pay the maximum fine of $500. He has for years conducted a business known as the "Post-Graduate Dental Institute," which advertised extensively in the newspapers of Spanish America and France, and was convicted of the same offense once before, when he was simply fined $50. As his present sentence is the most severe ever imposed in New York in a similar case, the State Dental Society, on whose complaint Kukay was prosecuted, feels encouraged in the belief that this will have a most salutary effect in deterring from their evil work a large number of men posing as dentists who, without education or legal right to practice, have for many years been thriving on the money of the poor.

DEATH-RATES IN NEW YORK. — Deaths from sunstroke for the week ending last Saturday amounted to only 42 as compared with 288 for the week ending July 15, 1911. The striking reduction in infant mortality which has characterized the statistics so far this year also continued during the past week, when deaths from all causes under one year totaled 309, as compared with 359 for the corresponding week of 1911. This result is attributed in large part to the work of the fifty-five municipal infants' milk stations, supplemented by other stations operated under private auspices, and in general to the work of the Babies' Welfare Association which, for the first time, has united all forces striving for the reduction of the infant death-rate.

The general death-rate for the week ending July 13, 1912, was 14.02 as against 18.22, for the corresponding week of 1911, the difference of 4.20 being equivalent to a decrease of 416 deaths.

Over half of the year 1912 has elapsed and the death-rate is 14.90 as compared with 16.35 for the first twenty-eight weeks of 1911.

PROPHYLAXIS OF RABIES. — Commissioner Lederle announces that the Board of Health at its meeting on Tuesday of last week adopted a special order calling for the shooting of unmuzzled dogs in the Borough of Richmond where, for some time past, complaints have been unusually frequent of dogs running at large and where a number of persons have been bitten. Since Jan. 1, 1912, out of 210 dogs from the Borough of Richmond, examined by the Department of Health, 70 cases of rabies were found.

The ordinary jurisdiction of the Department of Health in the matter of dog bites extends only to the removal of such dogs for observation and their destruction if found rabid or vicious to such an extent as to render them unfit to be at large. At times of special danger from rabies, the Board of Health, under its general power to abate nuisances to protect the public health, may adopt a special order calling for the killing of unmuzzled dogs at large in the streets.

VITAL STATISTICS FOR JUNE. — The weekly reports of the Health Department show that during the month of June the mortality in the city represented an annual death-rate of 12.77, as against 14.29 in May and 13.14 in June, 1911. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from measles declined from 28.75 in May to 19.25 in June; the weekly average from scarlet fever, from 17.75 to 13.25; from whooping-cough, from 7.75 to 4; from diphtheria and croup, from 23 to 21; from influenza, from 3.5 to 2; from pulmonary tuberculosis, from 175.25 to 160; from acute bronchitis, from 14 to 9.25; from pneumonia, from 114.5 to 77.25; from bronchopneumonia, from 131 to 79.75; from tubercular cerebrospinal meningitis, from 23.5 to 14.75; from cancer, from 78 to 69.5; from apoplexy and softening of the brain, from 23.25 to 15; from organic heart diseases, from 158 to 153.75; from appendicitis and typhlitis, from 15 to 13; from hernia and intestinal obstruction, from 12.25 to 9; from cirrhosis of the liver, from 17.75 to 15; and from puerperal diseases, including septicemia, from 12.25 to 10.5. Among the few diseases in which there was an augmented mortality were the following: The weekly average of deaths from typhoid fever increased from 4.75 to 7.25; from diarrheal diseases under five years of age, from 44 to 54; and from Bright's disease and acute nephritis, from 97 to 101.5.

HOSPITAL FOR NON-PULMONARY TUBERCULOSIS. — At the session of the Board of Estimate and Apportionment on July 15 the offer from the New York Association for Improving the Condition of the Poor to erect a hospital costing $250,-

000 for the sea-air treatment of children suffering from non-pulmonary tuberculosis, provided the city would agree to furnish a site and to operate the institution, an offer which was first made some six years ago, was finally accepted. It was due to the great success of the Sea Breeze Hospital at Coney Island, which the association started in 1904 as an experimental station for the treatment of tubercular bone, joint and glandular disease, which led to the accumulation of the $250,000 fund for the erection of a large permanent hospital of the kind. Rockaway Beach was selected by medical experts as the best site for the proposed institution, and a vigorous effort was made to purchase land there just before the close of Mayor McClellan's administration. There was, however, some question about the title of the desired property, and it was not until a few months ago that the city at last purchased a tract at the end of Rockaway peninsula for a seaside park, with the understanding that a portion of it was to be devoted to the hospital which the association offered to build.

Operative Discretion of a Surgeon. — Justice Garrison of the New Jersey Supreme Court, who was himself formerly a prominent member of the medical profession, rendered at Trenton, on July 14, an opinion in which he holds that a competent surgeon has the right to extend an operation beyond the limits originally contemplated without permission from the patient when in his judgment such extention is necessary, and the patient is under an anesthetic. The case in which the decision was given was that of Bennan *versus* Parsonnet, in which the plaintiff sued Dr. Victor Parsonnet, of Newark, for assault and battery and recovered in a lower court a verdict of $1,000 damages because the surgeon performed a more extensive operation than the one agreed upon. Bennan applied for an operation (the nature of which is not stated) which two years before had been unsuccessful, and Dr. Parsonnet, learning that he was a poor man, agreed to operate free. During the performance of the operation it was found that the condition was more serious than had been supposed, and that unless an extension of the procedure was made at once the patient would probably die. Accordingly, this was done, and the man recovered from the operation and is now well. The suit which he brought is certainly a remarkable expression of his gratitude for this happy result. Justice Garrison, while upholding the common law principle that a surgeon must get the consent of a patient before operating, grants that the unconscious condition of the patient would prevent this. The common law must therefore give way before the exigencies of the case, and the patient must abide by the judgment of the surgeon.

Farm Colony for Inebriates. — At last a site has been agreed upon for the farm colony of the Board of Inebriety. This is a tract of land, embracing 840 acres, near Goshen, Orange County, and on July 15 the Board of Estimate and Apportionment authorized the purchase of this for $75,000. It is a farm with some buildings on it, and the cost of putting the property in condition for the purposes for which it is designed is estimated at $165,000. The committee which has had charge of the matter, the two medical members of which are Drs. John Dorning, of Manhattan, and William Browning, of Brooklyn, has had great difficulty in selecting a suitable site for the institution which would not cost a higher price than the city authorities were willing to allow, but it believes that the one now decided upon, which is within a reasonable distance from New York and is otherwise well adapted to meet the plans of the Board of Inebriety, will prove entirely satisfactory. This new body, it will be recalled, is the fruit of some humane legislation, prompted by certain benevolent societies, and its object is to deal with inebriates with a view to cure. These will be committed to the custody of the board from two directions, — from the Magistrates' Courts, on complaint of the police, and by a court of record, on their own application or that of a relative. They will remain in its custody, engaged in healthful occupations, largely out-of-doors, until they appear to be permanently reformed. The plans of the board provide for the accommodation of 500 patients at the farm colony at first, but it is thought that later a larger number than this will have to be cared for.

A Leper Apprehended in Buffalo. — Report from Buffalo, N. Y., states that on July 21 a leprous Russian immigrant, who has been under pursuit by health officers for several weeks, was finally apprehended in that city, and isolated at the Ernest Wende Hospital. The patient, who is a rag-picker, is said to show an advanced stage of the disease. He is alleged to have landed originally at Montreal, Canada, and to have lived successively in Boston, New York, Cleveland, and Bay City and Ann Arbor, Mich.

OPIUM THEFTS BY GOVERNMENT EMPLOYEES. — Before the federal grand jury in New York City on July 23 indictments were returned against three employees at the appraiser's stores for being concerned in a conspiracy for the purloining and re-selling of confiscated opium ordered by the United States to be destroyed. Two of these men are alleged to have saved the drug from the furnace of the government building, and the third to have sold it to keepers of opium resorts in the city at the rate of $400 a pound, the retail value of gold being $320 a pound. Two of the defendants are in custody, the third was released on $1,500 bail.

FIREWORKS AND POLITICS. — Mayor Gaynor has sent a message to the board of aldermen disapproving of resolutions passed by the board which suspended the fireworks ordinance and allowed two political clubs to set off fireworks at their celebrations. In it he says: "The courts have repeatedly held that where fireworks are exploded under permission of resolutions like these the city is by the resolution itself made responsible in damage for personal injuries or death, or injuries to property, caused thereby. The courts hold such explosions of fireworks to be a public nuisance. Injuries and death are constantly occurring therefrom, for which the city is made to pay heavy damages. It seems time to put a stop to all of these explosions of fireworks throughout the city. They are just as objectionable and dangerous every day in the year as they are on Independence Day. These two resolutions, following those which the board has adopted heretofore, require that the persons to whom it gives the permission shall file a bond to indemnify the city against any loss or damage sustained by reason of the fireworks; but that amounts to little or nothing. It is only a false cover. The giving of such a bond will not restore the lives lost or the limbs shattered or injured. Moreover, the city has seldom, if ever, been able to recover on such a bond. All remember how scores of persons were killed and maimed by the explosion of fireworks set off by a candidate running for office about ten years ago. For the deaths and injuries caused thereby the city has paid $200,000, but has not thus far been reimbursed to the extent of a dollar; and there seems little prospect that it ever will be. I cite that instance, as it is typical." The instance referred to was at a mass meeting in Madison Square for the promotion of the election of William R. Hearst to Congress.

Current Literature.

MEDICAL RECORD.
JULY 20, 1912.

1. GIBNEY, V. P. *A Case of Still's Disease.*
2. BAINBRIDGE, W. S. *The De Keating-Hart Method of Thermo-Radiotherapy.*
3. *McKINNISS, C. R. *A Report of Twelve Cases of Mental Disease Treated with Salvarsan, with Special Reference to Blood Pressure during Injection.*
4. FREUDENTHAL, W. *Local Anesthetics in the Upper Respiratory Tract, Including the Adrenalin Preparations.*
5. RUSSELL, W. L. *The Mental Hygiene Movement.*
6. PERKINS, P. A. *The Large Incision and the Reason for It.*

3. McKinniss reports twelve cases of mental disease in which he studied the effects of salvarsan. Special attention was paid to the blood pressure during injection. He found that there was very little change in the blood pressure even when as much as 195 ccm. was injected. Two cases, whose psychoses were thought to be due to syphilis of the brain, were much improved by treatment, while two cases of paresis showed some temporary improvement. The writer remarks that there is nothing in his experience with these cases to show the advantage of salvarsan over mercury in the treatment of syphilis. [L. D. C.]

NEW YORK MEDICAL JOURNAL.
JULY 20, 1912.

1. WOODBURY, T. *Tincture of Iodine the Best Surgical Disinfectant.*
2. RUDIS-JICINSKY, J. *The Latest in Skiagraphy.*
3. BROOKS, H. *The Anemic Habit.*
4. *RUTZ, A. A. *Discovery of Pneumococcus in the Feces; Rôle of the Intestine in the Symptomatology and Treatment of Acute Lobar Pneumonia.*
5. BROWNING, W., AND LINTZ, W. *The Use of Spinal Fluid (Autotherapy) in the Treatment of Chronic Neurosyphilides.*
6. TAYLOR, J. H. *Hypertrophied Thymus and Status Lymphaticus.*
7. KOON, T. M. *Garbage Disposal.*
8. FILES, C. O. *Syphilitic Facial Paralysis.*

4. Rutz concludes from clinical experience and bacteriologic study that in pneumonia the intestine plays a special and important rôle. He has found living pneumococci in the feces in the majority of his cases and he calls attention to the frequent occurrence of tympanites in this disease. The facts indicate that the intestine is the special organ of excretion of the toxins. Treatment based on this idea should and does materially reduce toxemia and lower mortality. Incidentally the distressing and harmful symptom meteorism is relieved. The writer's intestinal treatment is as follows: From the very onset patients receive early in the morning a soapsuds enema with glycerine and the addition of turpentine if the tympanites is excessive. During the rest of the day they receive from one to three rectal injections of one quart of hot 1% salt solution, containing one or two ounces of magnesium sulphate. If there is danger of general pulmonary edema, the water is much reduced. Cutaneous stimulation is secured by daily hot baths. This treatment is continued until the crisis. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
JULY 13, 1912.

1. HUNTINGTON, T. W. *The Hospital Problem.*
2. *HARTWELL, J. A., AND HOGNET, J. P. *Experimental Intestinal Obstruction in Dogs with Especial Reference to the Cause of Death and the Treatment by Large Amounts of Normal Saline Solution.*
3. CHASE, W. B. *The Resistance of the Patient as a Guide to Operative Procedure.*
4. *DEAVER, J. B. *Hysterotomy.*
5. FLETCHER, M. H. *Unclean Mouth and Its Evil Results.*
6. MARSHALL, J. S. *Wanted: A Sense of Asepsis.*
7. BOLDT, H. J. *Diseases of the Fallopian Tubes.*

8. *BAUM, H. C. *The Etiology and Treatment of Superfluous Hair.*
9. CHIPMAN, E. D. *Cutaneous Reaction.*
10. FISHER, W. C. *The Care of the Mouth of the Sick.*
11. BEVAN, A. D. *Dilatation of the Large Bowel.*
12. *CRILE, G. W. *The Results of Operation, Especially Abdominal, Performed on the Principle of Anoci-Association.*
13. BLOODGOOD, J. C. *Dilatation of the Duodenum in Relation to Surgery of the Stomach and Colon.*

2. The summary of Hartwell and Hognet's work is as follows: "Dogs with complete obstruction in the lower duodenum (not shutting off the circulation) if untreated will live only a few days, — three to ten. During this time they vomit large quantities. The urine shows marked abnormalities when compared with the urine of dogs in simple starvation. If a quantity of normal saline solution, slightly in excess of the total loss of water in the urine and vomitus, be given daily in the form of hypodermoclysis, the dogs promptly return to the condition of a dog undergoing simple starvation. Dogs so treated have lived in excellent health for periods of three weeks and more, showing at the end of that time every indication that they would live much longer if the treatment were continued. The important element, therefore, in the development of the symptoms seen in intestinal obstruction in dogs is loss of water due to the vomiting. The symptoms of intoxication are those resulting from tissue disintegration following this loss. Replacement of water cures the symptoms and prevents death over astonishingly long periods. If strangulation complicates obstruction, the above facts do not seem to hold true." See article by Drs. Murphy and Vincent, BOSTON MEDICAL AND SURGICAL JOURNAL, Nov. 2, 1911, no. 18, vol. clxv, p. 684.

4. Deaver is a strong advocate of hysterotomy over any other procedure in all cases of placenta previa, also in many cases of obscure bleeding from the uterus. Little can be learned often from curettage, but opening of the uterus gives ample inspection, and often greatly simplifies the operative procedure and clarifies the diagnosis and prognosis.

8. Baum's article on superfluous hair is extremely interesting and worth reading. He is very convincing in his arguments. The article is better read as a whole than reviewed.

12. Crile gives an interesting review and summary of his work on anoci-association as applied to operative procedures. It seems very much worth while and worthy of extended trial. [E. H. R.]

JULY 20, 1912.

1. *MILLER, C. J. *The Present Status of Ligation or Excision of the Pelvic Veins in the Treatment of Septic Thrombophlebitis of Puerperal Origin.*
2. *HUGGINS, R. R. *The Ligation or Excision of the Ovarian or Deep Pelvic Veins in the Treatment of Puerperal Thrombophlebitis.*
3. RHEIN, J. H. W. *Tuberculous Meningitis: A Pathologic Report of Nine Cases.*
4. STURGES, M. G. *Changed Personality Due to Head Injury.*
5. GORDON, A. *Adipositas Cerebralis in its Relation to Tumor of the Hypophysis.*
6. *RICH, E. A. *The Atrophic Form of Little's Paralysis.*
7. SUTTON, R. L. *Xanthoma Tuberosum Multiplex Vulgaris Mistaken for Myomatosis Cutis Disseminata.*
8. *EDLAVITCH, B. M. *Primary Carcinoma of the Lung.*
9. GATCH, N. D. *Aseptic Intestinal Anastomosis. An Experimental Study.*
10. *COTTON, F. J. *Operative Treatment in Joint Fractures.*
11. ELY, L. W. *The Surgery of Bones and Joints.*
12. MCMURTRY, L. S. *Intestinal Complications in Gynecologic Operations.*
13. SMITH, F. C. *A Useful Procedure in Submucous Resection of the Nasal Septum.*
14. ALLAN, W. *Thymol for Taenia Saginata.*

1 and 2. Miller and Huggins both agree, in separate articles, that simple ligation is enough, and a feasible and worthy procedure in cases of septic thrombophlebitis of the ovarian and pelvic veins. Laparotomy is advisable in suspicious cases and drainage generally.

6. Rich believes that the atrophic form of cerebral palsy is a distinct entity and that the characteristic difference between this and the usual form of Little's disease is in the lack of development of all parts of the body except the skeleton.

8. Edlavitch states that there is abundant evidence of the occurrence of primary carcinoma of the lung as a definite pathologic entity. The tumor originates mostly in the epithelium of the bronchi, not infrequently in the alveolar epithelium and sometimes in the epithelium of the bronchial mucous gland. It is about three times more common in men than in women. The right side is affected about twice as often as the left. It may involve part or all of a lobe or an entire lung: it is usually unilateral and often fairly well circumscribed. The bronchial lymph nodes are practically always involved, but other parts, principally the brain, which seems to be especially susceptible, may become involved by metastasis. Pleural effusion is hemorrhagic and quite constant. The presence of large epithelial cells in this fluid is of diagnostic import.

10. Cotton's article on joint fractures is excellent, but too much in detail for short review. It is well worth study. [E. H. R.]

THE JOURNAL OF EXPERIMENTAL MEDICINE.

July 1, 1912.

1. CECIL, R. L. *The Effect of Certain Experimental Procedures on the Islands of Langerhans.*
2. CARREL, A. *Permanent Intubation of the Thoracic Aorta.*
3. BACHMANN, G. *A Physiologico-Pathological Study of a Case of Heart-Block Occurring in a Dog as a Result of Natural Causes.*
4. *WADSWORTH, A. B. *Studies on Pneumococcus Infection in Animals.*

4. Wadsworth, studing pneumococcus infection in animals, finds that immune sera vary greatly in their curative value. It is only after immunization with virulent living cultures that the blood serum acquires marked curative action. After pneumococcus infection in the rabbit has become established, treatment with this immune serum induces crisis and cures the animals. Since the recovery of animals from pneumococcus infection differs in no essential from that of man, and since it is possible to cure pneumococcus infection in animals much more susceptible than man by sera from animals highly immunized with living cultures of virulent pneumococci, Wadsworth finds it difficult to conceive of the infection in man failing to yield similarly to the administration of such sera. [R. I. L.]

THE LANCET.

JULY 13, 1912.

1. *POWER, D'A. *A Clinical Lecture on Five Cases of Duodenal Perforation.*
2. *FRENCH, H. *High Blood Pressure and the Commoner Affections of Arteries.*
3. KNAGGS, R. L., AND WALKER, W. W. *A Case of Tubal Pregnancy. Development to Term without Rupture; Lithopedion (Skeletonisation); Perforation; Peritonitis; Operation; Coincident Uterine Pregnancy; Subsequent Delivery of a Living Child.*
4. *SHERREN, J. *The Treatment of Chronic Ulcer of the Stomach and Duodenum by Gastro-Jejunostomy, with a Report on Seventy-two Consecutive Cases Operated on more than Two Years Ago.*
5. *BATTEN, F. E. *The Use of Celluloid Splints in the Treatment of Cases of Poliomyelitis.*
6. *MCINTOSH, J., FILDES, P., AND PARKER H. B. *Neosalvarsan.*
7. CAMPBELL, H. *Observations on the Neuron. I.* (To be continued.)

1. This paper is a detailed description of five cases of acute duodenal perforation with remarks as to operation, diagnosis, fallacious improvement in symptoms, etc.

2. French discusses interestingly the commoner affections of the arteries as related to high blood pressure. He believes that pressure can be reduced with safety only when the muscle of the arterial coats is still muscle; as long as it is still muscle it may be rendered once more

elastic by "arterial gymnastics"; when the muscle is changed to fibrous tissue, high blood pressure becomes a necessity. The correct lines of treatment are along (1) prevention, by moderation in eating, drinking, working, etc., (2) relief in earlier stages by "arterial gymnastics" and (3) the realization that in later stages high blood pressure in more or less a necessity. "Arterial gymnastics" consists of baths, massage, purgation and fasting periodically, regulated exercise and rest, etc.

4. Sherren in an elaborate table gives the results of seventy-two cases of chronic ulcer of the stomach operated on more than two years ago. Of 26 cases of chronic duodenal ulcer, 24 are living; of these 21 were men. Of the 24 living, 22 are in perfect health, one of the 2 remaining still has pain but no nausea or vomiting, and the other is not "quite well." Of 46 cases of chronic gastric ulcer, 2 died in hospital. Of the 44 survivors, he has traced 37; of these, 32 are perfectly well, 4 much relieved and only 1 unrelieved. He urges care of teeth and of diet three months prior to operation. The appendix is removed if possible at operation.

5. Batten in a well-illustrated article describes the use of celluloid splints in cases of acute anterior-poliomyelitis.

6. Neosalvarsan, "914," is a modification and improvement over "606," or salvarsan. The writers describe its formula, preparation and advantages over the older preparation. It is much easier to prepare for injection, can be given in stronger solutions and is mixed with distilled water and not salt solution. It is five to ten times more bactericidal than "606," and decidedly less toxic, allowing in general a far more intensive treatment of early syphilis. These researches have been carried on at the bacteriological laboratory of the London Hospital, with the consent of Professor Ehrlich.

[J. B. H.]

BRITISH MEDICAL JOURNAL.

JULY 13, 1912.

1. HASLIP, G. E. *The State, the Poor and our Profession.*
2. NASON, E. N. *Modern Social Changes and Legislation as they affect the Medical Profession.*
3. TURNER, J. *Changes in the Conception and Treatment of Insanity during the Past Twenty-eight Years.*
4. GIBSON, C. *A Plea for Harrogate and Other English Health Resorts.*
5. ROUTH, L. M. *Parotitis Associated with Glycosuria and Acidosis.*
6. *LEWIS, T. *Electro-Cardiography and its Importance in the Clinical Examination of Heart Affections.*
7. COLE, P. P. *Subperiosteal Hematoma.*

6. Lewis sums up his remarks on electro-cardiotherapy as follows: This method of examination of the heart is important from many points of view. It may give indications of enlargement of the walls of one or other cardiac chamber, it may localize small lesions in the musculature, it tells when the rhythm is no longer under normal nervous control. It gives separate record of contraction in auricle and in ventricle, it gives a perfect means of ascertaining the functional efficiency of the auriculo-ventricular bundle. It differentiates between different forms of slow or rapid heart action and gives an analysis of every form of cardiac irregularity. It has great and growing value in the practical management of heart cases. He believes that the time is near at hand when an examination of the heart is incomplete if this new method is neglected.

[J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT. No. 25.

JUNE 18, 1912.

1. *QUINCKE, H. *Lymphuria.*
2. PLESCH, J., AND KAREZAG, L. *Action of Thorium X.* (To be concluded.)
3. GRUBER, G. B. *Studies of the Wassermann Reaction on the Corpse.*
4. HEIMANN, E. *Chemical, Physiological and Clinical Studies of "Systogen," a Substitute for Ergot.*
5. LEWASCHEW, S. W. *The Quest of Specific Treatment for Phthisis.*
6. SIOLI, F. *Clinical Results with Luminal, a New Hypnotic.*
7. SALINGER, J. *Salvarsan in Chorea Minor.*
8. HUFNAGEL, V. *Diseases of the Thyroid on a Tuberculous Background.*
9. STEINMANN, F. *A New Increased Pressure Apparatus for Narcosis.*
10. FLÖRCKEN, H. *Stenosing Tenovaginitis at the Processus Styloideus Radii.*
11. GRAUTMANN, G. *An Endothelioma of the Nasal Septum.*
12. BAMBERGER. *A Case of Acute Osteomyelitis of the Thigh in Pregnancy.*
13. *KEHR, H. *Duodenal Ulcer.* (Concluded.)
14. *MASSINI, R. *The Wassermann Reaction in Internal Diseases.* (Concluded.)

1. The writer discusses the chances of lymph getting into the urine and reaches the conclusion that lymphuria may be regarded as the probable origin of many obscure albuminurias in which renal elements are not found.

13. Kehr discusses at considerable length the relative merits of German, English and American operating in the abdomen. He thinks that the English and Americans advise laparotomy too freely and that the decision in each case should be reached only after judging carefully the circumstances and individual chances of the patient. The views are dispassionate, the language moderate and humor is not lacking. (A most interesting paper.)

14. Massini expresses the view that a positive Wassermann test with advanced phthisis or carcinoma means syphilis also.

[G. C. S.]

No. 26. JUNE 25, 1912.

1. *SCHMIDT, A. *Gradual Perforation of Small Pleural Empyemata into the Lung.*
2. *LANGE, F. *Obstetrical Paralysis of the Arm.*
3. HARNOCK, E., AND HILDEBRANDT, H. *Experiments on Poisoning with Rattlesnake Venom.*
4. STEIN, A. E. *New Methods for Plastic Operation on Nerves.*
5. BIRK, W. *Chronic Recurring Pyelitis in Childhood.*
6. JOLLY, P. *Epilepsy Following Accident with Electricity.*
7. IVERSEN, J. *Neosalvarsan.*
8. JOOSS, C. E. *A Case of Malignant Tumor of the Brain Treated with Salvarsan.*
9. WAHLE, S. *Epidemiological Study of Perityphlitis.*
10. ALTHOFF. *Prescribing Solutions of Hydrogen Peroxide.*
11. MAYER, M. *Fatal Puncture of the Abdomen after Implantation of Carcinoma.*
12. BRUCK. *Semmelweis and Lister.*
13. RITTER. *"The German Sanatoria in Davos" and the Sanatorium Movement in Germany.*
14. HAUSSNER, P. *Hypersusceptibility brought about by Means of Albumins of the Body.*
15. PLESCH, J., AND HARZAG, L. *Action of Thorium X.* (Concluded.)

1. Schmidt records some interesting observations on empyemata.

2. Lange points out that it has become the duty of the physician in cases of obstetrical paralysis to differentiate early between distortion, separation of the epiphysis and true paralysis and to apply appropriate treatment.

[G. C. S.]

BERLINER KLINISCHE WOCHENSCHRIFT. No. 6.

FEB. 5, 1912.

1. FRAENKEL, A., AND KORTE, W. *The Present Position of Lung Surgery.*
2. HIRSCHBERG, J. *Methyl Alcohol Poisoning.*
3. ARONSON, H. *Anaphylatoxin and Bacterial Poisons.* (Concluded.)
4. *FRUGONI, C. *Sokodu.* (*A Disease caused by the Bite of a Rat.*)
5. MANASSE, P. *The Cause of Pylorospasm.*
6. WIENER, H. J. *Eosinophile Cells in the Intestinal Mucosa.*
7. BACHEM, C. *Codeonal, a New Narcotic and Hypnotic.*
8. LUBLINSKI, W. *The Local Use of Menthol, and Its Dangers in Early Infancy.*

4. The author reports a case of Sokodu, an oriental parasitic disease caused by the bite of an infected rat. The incubation period following a minute punctured wound of the skin, which soon heals, is from one to three weeks. The first symptoms are chills and fever, headache, general malaise and nausea. The local manifestations, appearing at the site of the first bite, are an inflammatory swelling, which later progresses to minute ulcerations, together with enlargement of the lymph glands, which do not, however, break down. This is followed by a dark red to violet erythema, which is described as having a marked exudate. In those cases which do not terminate fatally at first, there is a tendency to relapse, about once a month. The diagnosis is made by the blood findings, the parasite circulating in the blood. Special eye complications are described, as one-sided exophthalmos, with injection of the blood vessels, and edema of the conjunctiva, without damage to the function of the eye. [J. B. S., Jr.]

No. 7. Feb. 12, 1912.

1. Fraenkel, A. and Korte, W. *The Present Position of Lung Surgery.* (Continued.)
2. Gaehtgens, W. *New Bacteriological Diagnosis of Typhus, and the Practical Combatting of the Disease.*
3. Beck, O., and Biach P. *The Labyrinth and the Tendon Reflex.*
4. Stumpke, G., and Bruckmann, E. *The Toxic Effect of Salvarsan.*
5. Meyer, F. M. *Some Experiences with the Epiphanin Reaction in Syphilis.*
6. Gaupp, O. *Some Experiences with Codeonal, a New Sleep and Rest Producer.*

No. 8. Feb. 19, 1912.

1. Boas, I. *Diarrhea Originating in the Stomach from Pyloric Stenosis.*
2. Sonnenburg, E. *Remarks Concerning Fracture of the Cervical Vertebræ.*
3. *Casper, L. *Resection of the Bladder for Severe Tuberculosis of the Bladder.*
4. Haga, I. *A Statistical Study of the Appearance of Fat and Myelin in Tumors.*
5. Bauer, J. *The Origin of the Anaphylatoxins.*
6. Saenger, M. *The Psychical Factor Underlying Asthma.*
7. Fraenkel, A., and Korte, W. *The Present Position of Lung Surgery.* (Conclusion.)
8. v. Balazsy, D. *The Engel-Turnau Urine-Reaction.*

3. The author reports two cases of total extirpation of the bladder for severe tuberculosis. One died and the other is still alive. In both cases he did a nephrostomy, draining the kidneys through the back. He tried all other means of relief, before subjecting his patients to the operation, and was led to the operation eventually in order to relieve them of the pain and the discomfort which they were suffering. He advances strong arguments for drainage through the back and total extirpation of the ureters. [J. B. S., Jr.]

No. 9. Feb. 26, 1912.

1. Kreibich, K. *The Origin of the Retina Pigments.*
2. Strasburger, J. *The Contents of the Arterial Blood by the Inspiration of Radium Rays, and by their Introduction into the Intestine.*
3. Frank, E. *The Relation of the Hypophysis to Diabetes Insipidus.*
4. Paus, N. *Statistics Concerning Peptic Ulcer.*
5. Pollak, R. *The Vibrio-like Forms of the B. Fecalis Alcaligenes.*
6. Wohlgemuth, H. *Appendicitis in Women and its Relation to the Adnexa and to Tubal Pregnancy.*
7. Neufeld, L. *Ozena, Chronic Diphtheria and Pharyngeal Diphtheria.*
8. Katz, J. *Statistics of Tuberculosis.*
9. Berliner, M. *Iodine-Menthol Injection in Tuberculosis.*
10. Suranyi, E. *Remarks on the Communication of U. Friedemann and E. Herzfeld, "Immunity Reaction with Lipoid-free Serum."*
11. Hirschberg, L. K. *A New Method for Separating Saccharose from Dextrose, Pentose, Levulose, Lactose, Maltose, and Invert Sugar, in the Urine, Saliva or Other Secretions.*

Wiener Klinische Wochenschrift. No. 28.

July 11, 1912.

1. *Rollier, *The Sun Treatment of Tuberculosis.*
2. Kaufmann, R. *The Action of Physostigmin in Tachycardia.*
3. Skutetzky, A. *Tuberculosis Serosarum Developing under the Picture of Banti's Disease.*
4. Szarvasy, L. *Contributions to the Tolerance of the Eye for Foreign Bodies.*
5. Burgerstein, L. *The Austrian Society for School Hygiene.*
6. Weisz, M. *The Technic of the Diazo-Reaction.*
7. Feri, K. *Reply to the Above Observations.*

1. Rollier emphasizes the importance of sunlight in the treatment of all forms of tuberculosis. His discussion may to advantage be compared with the recent symposium on the same subject in the *Deutscher Zeitschrift für Chirurgie*, Band 114 (reviewed in the issue of the Journal for July 25, vol. clxvii, p. 140). [R. M. G.]

Revue de Chirurgie.

July, 1912.

1. *Nimier, H., and Nimier, A. *Note on the Pathogenesis of Secondary and Temporary Facial Paralysis in Fractures of the Petrous Bone.*
2. Carlier, V., and Gérard, M. *Surgical Anatomy and Surgery of Horseshoe Kidney.* (To be continued.)
3. Gougerot, H. *Tuberculous Elephantiasis.*
4. *Johansson, S. *Contribution to the Study of Spontaneous Ruptures of the Spleen.*
5. *Gorse, P. *Intramuscular Angiomata.*
6. Hallopeau, P. *Temporary Disarticulation of the Last Two Metatarsals.*

1. The authors quote from Barwick and Sokal three autopsied cases of this rather rare injury, and in their discussion of its pathogenesis conclude that it results from the temporary alteration of the nerve trunk from the blood extravasated in its interior under the influence of traumatism.

4. Johansson reports a case of spontaneous rupture of the spleen in the course of cancer of the stomach in a patient of thirty-nine, and from his discussion he concludes that the indications for splenectomy of malarial spleens should be increased, and that in the face of symptoms causing suspicion of perforative peritonitis or of intra-abdominal hemorrhage in persons with a notably enlarged spleen, as in typhoid for instance, the possibility of spontaneous rupture of the spleen should always be taken into account and recourse had to operation without delay. There is an excellent bibliography of forty-four titles.

5. Gorse reports a case of intramuscular angioma, and collects seventy-five similar ones from the literature. There is an extensive bibliography of seventy-five titles. [R. M. G.]

Miscellany.

ANNIVERSARY OF THE ROYAL SOCIETY.

The two hundred and fiftieth anniversary of the foundation of the Royal Society was celebrated in England last week. Representatives were present from learned societies throughout the world. Among the honorary degrees conferred upon these foreign delegates by Oxford University in commemoration of the occasion was that of D.Sc. on Dr. Waldeyer, professor of anatomy and director of the anatomical institute at the University of Berlin. The Royal Society was officially chartered in 1662, but its informal

beginnings date back some years previously. An account of these is given in a recent issue of the London *Post:*

"For the real origin of the Royal Society it is necessary to go back to the year 1645, when Dr. John Wallis records how he and some friends used to meet weekly, sometimes at Dr. Goddard's lodgings in Wood Street, sometimes at the Bull Head, Cheapside, and in term times at the Gresham College, to discuss various points in experimental philosophy. The gathering, which was to become known as the "invisible college of Boyle," was one of the many results of the new philosophy to which Bacon gave his name and his authority. In its earliest years it narrowly escaped dissolution. The first blow that it sustained was that some of its members migrated to Oxford, where they founded the "Philosophical Society of Oxford." The remaining members, however, continued to meet at Gresham College, and they included among their company Lord Brereton and John Evelyn.

"It was their practice to have 'relations,' which in some respects may be regarded as the origin of the present system of reading papers. The following list of subjects selected from a large number of early 'relations' has been chosen to illustrate the curious character of some of the inquiries, in view of modern ideas, and the even more curious way in which other of the papers are in harmony with current investigations: A method for making a history of the weather, direction for the observation of the eclipses of the moon, a proposal for making wine (out of sugar cane), of the effects of thunder and lightning, of hurricanes and spouts, of fish and frogs said to be rain'd, of the raining of dust out of the air and of the distance it has been carried by great fires and earthquakes, of the fatal effects of damps on miners and of the ways of recovering them, of gold found in little lumps in a mine in England, of hardening steel so as to cut porphyry with it, of eggs proving fruitful after they had been frozen, of recovering a tired horse with sheep's blood, of grafting teeth and making the teeth of one man grow in the mouth of another."

These seem in some respects little enough like the proceedings of a modern scientific meeting, yet from them has developed one of the leading scientific societies of the world.

FIRST INTERNATIONAL EUGENICS CONGRESS.

THE first International Eugenics Congress, opened on July 24, at London, was attended by about 400 delegates, representing 12 different nations. Among the Americans who presented papers at the several sessions of the congress were Dr. Raymond Pearl, of the Maine Experiment Station, on "The Inheritance of Fecundity"; Dr. D. F. Weeks, of the New Jersey State College, on "The Inheritance of Epilepsy"; Dr. C. B. Davenport, trustee of the Eugenics Record Office of the United States, at Cold Spring Harbor, N. Y., on "Marriage and Eugenics"; Mr. Bleecker Van Wagenen, of the American Breeders' Association, on "The Best Practicable Means of Cutting Off the Defective Germ Plasm in the Human Population"; and Dr. G. Smith, of the University of Minnesota, on "Eugenics and the New Social Consciousness."

"During the progress of the congress an exhibit consisting of charts, pedigrees, photographs and specimens illustrative of heredity, especially in man; relics of Charles Darwin, Sir Francis Galton, Gregor Mendel and portraits of notable workers was shown. Many of these relics came from America."

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 20, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	6	—
Chicago	—	—	Waltham	1	—
Philadelphia	—	—	Brookline	3	—
St. Louis	—	—	Chicopee	11	8
Baltimore	—	—	Gloucester	—	—
Cleveland	—	—	Medford	4	1
Buffalo	—	—	North Adams	3	1
Pittsburg	—	—	Northampton	8	1
Cincinnati	—	—	Beverly	5	1
Milwaukee	—	—	Revere	3	—
Washington	—	—	Leominster	2	—
Providence	—	—	Attleboro	3	—
Boston	204	64	Westfield	5	2
Worcester	50	23	Peabody	—	—
Fall River	38	26	Melrose	3	—
Lowell	31	14	Woburn	2	1
Cambridge	22	6	Newburyport	2	—
New Bedford	25	34	Gardner	2	—
Lynn	21	3	Marlboro	3	—
Springfield	32	12	Clinton	4	1
Lawrence	24	12	Milford	—	—
Somerville	12	4	Adams	1	1
Holyoke	19	10	Framingham	—	—
Brockton	11	6	Weymouth	—	—
Malden	9	2	Watertown	0	—
Haverhill	7	2	Southbridge	2	1
Salem	—	—	Plymouth	—	—
Newton	4	3	Webster	2	2
Fitchburg	4	1	Methuen	—	—
Taunton	13	5	Wakefield	2	—
Everett	5	4	Arlington	3	—
Quincy	—	—	Greenfield	4	1
Chelsea	9	2	Winthrop	3	—

RECENT DEATHS.

JAMES ANSON BUSHEE, M.D., S.M.M.S., died on May 23, 1912, at the age of seventy-five years, in Somerville, Mass., not in Taunton, as stated in the issue of the JOURNAL for July 18.

DR. JAMES A. EXTON, who died of cerebral hemorrhage on July 25, at Arlington, N. J., was born in Clinton, N. J., on Nov. 3, 1844. Throughout the Civil War he served as an enlisted man in the ranks of the Thirty-First New Jersey Volunteer Infantry. He was a member of the Surgeons' Association of the Erie Railroad, of the Essex County Medical Milk Commission, of the Jersey City Practitioners' Club, of the Hudson County Medical Association, of the New Jersey State Medical Association and of the Academy of Medicine of New Jersey. He is survived by his widow and by three daughters.

EDWARD JOSEPH SHANAHAN, M.D., S.M.M.S., whose death at Taunton, Mass., was reported in the issue of the JOURNAL for July 18, was born in 1868.

DR. FREDERICK L. CONDICT, of New Brunswick, N. J., died on July 21, at the Lebanon (Pa.) Hospital, after an operation for appendicitis. Dr. Condict was a member of the New Jersey National Guard, and was serving with his command in camp at Mount Gretna at the time he was taken ill.

Address.

SOME UNSOLVED PROBLEMS OF GASTRO-ENTEROLOGY.*

BY W. B. CANNON, M.D.,

George Higginson Professor of Physiology, Harvard University.

EVERY one who has ventured into unexplored territory has seen many features which he does not describe, and has had presented to his imagination many alluring suggestions for further search which he does not report. The telling of actual accomplishments seems much more important than the telling of what has been only partly accomplished or what might be accomplished if only conditions were favorable. What is true of the explorer is true also of the investigator in science. To speak of hopes, ambitions and bare possibilities in research, or to give accounts of work half-done, is not the office of the cautious contributor to the body of knowledge. He realizes that there is danger in such a procedure, — danger that guesses at the truth may be regarded by the less cautious as fair realities.

On the other hand a clear advantage may arise from an expression of the possibilities which the investigator perceives. If he has worked much in any field, he knows its possibilities better than one who casually glances at it; and if he describes some of these possibilities, he may stir the interest of a capable worker who needs only to see the chance for service before the impulse to engage in research shall begin to operate.

With the warning, therefore, that such intimations of fact as I may venture are not to be taken as actualities — indeed, that they may not prove, on being tested, even remotely true — and further, with the hope that these intimations may stimulate some one to productive labors in gastro-enterology, I propose to detail some of the problems in this field which still await solution and which seem to me interesting.

At the beginning of the long series of reflex contractions which carry material through the alimentary canal is the reflex of swallowing. Observations on lower animals have revealed specially sensitive spots in the back of the mouth, afferent impulses from which liberate the sudden sequence of movements constituting deglutition. According to Kahn the spots are extraordinarily excitable by mechanical stimuli.[1] Their peculiar sensitiveness probably accounts for the difficulty in studying their position in man, — the attempt to touch places here and there in the back of the mouth is done with such roughness that the vomiting reflex, rather than the swallowing reflex, is evoked. Possibly, however, these regions could be satisfactorily studied by applying a minute blast of dry air. Both the contact of the air on the mucous membrane, and the drying, might call forth the typical response. That this response is strictly reflex in character was shown by Wassilieff on himself, when he found that after cocainizing his pharynx he was wholly unable to swallow, and had to expectorate the accumulated saliva.

As soon as a mass of material is seized by the swallowing reflex, its normal progress thenceforth is managed automatically by the neuromusculature of the digestive canal. Recently I have presented evidence that throughout that part of the canal which is provided with smooth muscle a reflex is present such that a stimulus at any point provokes contraction above and relaxation below. This "myenteric reflex" is operative at the cardiac sphincter, for acid below, in the stomach, causes contraction at the cardia; it is operative at the pyloric sphincter, for acid in the stomach opens, and acid in the duodenum closes, the pyloric orifice; and the reflex is also manifested in the propulsive peristalsis, or diastalsis as I prefer to call it,[2] in the small and large intestines.

There are important aspects of this activity, however, that remain unexplained. For instance, in the region immediately beyond the duodenum the chyme is moved with a rapidity not seen elsewhere in the small intestine. If this is true also in man the region beyond the duodenum would naturally be "jejune." What causes this rapid progress is still not accounted for. Possibly the combination of bile and pancreatic juice poured out in the duodenum is the occasion for it, — a suggestion which is easily tested.

Why a mass of food in the small intestine is not moved forward continuously, why it ceases to be propelled, and why it is started again, — all this is unknown. That some regulatory arrangement is present is suggested by the fact that the different foodstuffs do not pass along the small intestine with the same speed, and yet when the end of the ileum is reached practically all of the useful material is absorbed. Thus the speed of propagation seems adapted to the rate of absorption. The work of London and his associates indicates also that foodstuffs are absorbed at different rates at different parts of the tube, — meat most in the upper part, starch and fat most in the lower part,[3] — and that in each portion of the tract, in the case of any particular food, a constant percentage amount is absorbed, quite independent of the amount fed.[4] Thus whether little bulk or much bulk is given the entire small intestine is forced into service. The explanation of these results should be looked for, I think, in a response of the canal to the nature and state of the intestinal contents, not in a response to mechanical stretching. Certainly if we consider the functions of digestion and absorption which diastalsis subserves, the forwarding of the nutriment might be serviceable, not because the mass as such must be advanced, but because fresh regions for digestion and absorption would be advantageous. The degree of chemical change in the chyme, or the state of the mucosa, or some relation between these two, might then explain the peculiarities of diastalsis in the small intestine. But here again we

*Address as president of the American Gastro-enterological Association.

[1] Kahn: Arch. für Physiol., 1903, Suppl., p. 386.

[2] See Cannon: Am. Jour. Physiol., 1912, xxx, p. 127.

[3] London and Sivré: Zeitschr. für. physiol. Chem., 1909, lx, p. 201.

[4] London and Sandberg: Zeitschr. für physiol. Chem., 1908, lvi, p. 402.

are concerned with an important problem of regulation, — the regulation of the speed of transmission to the rapidity of absorption, so that all the long tube is called on to take up the food, and yet very little food is carried into the colon.

In connection with the myenteric reflex the question arises as to the relation between diastalsis of the ileum and anastalsis (or reversed waves) in the proximal colon. Lieb and I have proved [5] that the stomach relaxes as food approaches it in the esophagus, and Meltzer and Joseph [6] have shown that contractions of the duodenum cease in anticipation of a discharge from the stomach. Are the reversed waves of the colon similarly related to an oncoming wave in the small intestine? Observations made during the past year in the Harvard Laboratory by Mr. Henry Lyman indicate that this relation does in fact exist, and that as material begins to pass the ileocolic sphincter, the tone and the undulations of the proximal colon are abolished.

The relation of the myenteric reflex to defecation has not been studied. A disturbance of defecation follows severance of the sacral visceral nerves, or their dorsal roots, and this disturbance indicates that, like the esophagus, the distal colon and rectum are intimately dependent on connection with the central nervous system. This inference is supported by Bayliss and Starling's observation that the activity of the local mechanism diminishes from the ileocolic valve to the anus, thus throwing the evacuation of the distal colon more and more into the control of extrinsic nerves. And yet the observation of Goltz and Ewald [7] that destruction of the lumbar and sacral cord in the dog produces only a temporary defect, and that after a few weeks normal activity of the colon returns, with feces of usual consistency discharged at customary intervals, — this observation suggests the presence of some other mechanism than that of a spinal reflex. Does the myenteric reflex become operative some time after the distal colon and rectum are isolated, just as the local response appears in the lower esophagus some time after the vagi are severed?

Still another possible relation of the myenteric reflex to activities of the canal lies in the functioning of the ileocolic sphincter. As already stated, the cardia and pyloric sphincters are operated through this reflex. May there not be some sort of chemical stimulus in the colon, keeping the ileocolic sphincter closed? The fact that the sphincter has been seen to relax and permit an abundant reflux into the small intestine when material has been injected per rectum suggests that the sphincter may treat differently substances which have entered the cecum from the ileum and those which are brought from the other direction.

In connection with the functioning of the sphincters an investigation of pathological conditions affecting the action of the pyloric sphincter would be of interest. About six years ago F. T. Murphy and I showed that transsection of the duodenum a few centimeters beyond the pylorus caused the discharge of chyme from the stomach to be delayed for several hours longer than etherization and laparotomy alone would delay it, and this in spite of continued gastric katastalsis.[8] In other words, the pylorus was somehow kept closed so that the chyme did not enter the injured intestine until the first processes of repair had been accomplished. The manner by which this effect is produced has not been determined. In an experiment not before reported Murphy and I showed that almost the same degree of retention will result if the muscular coats and the myenteric plexus are transsected, without injury to the mucosa. It seems to me probable that the effect is wrought through the myenteric plexus, but the possibility of mediation through the central nervous system has not been eliminated. In the same class with this observation on intestinal injury is the question of the effect of ulceration on the action of the pyloric sphincter. Compressing a part of the alimentary canal between two flat surfaces for a few hours under aseptic precautions results in necrosis of the mucosa without destruction of the muscularis. Thus the conditions of ulceration can be simulated. By use of this method either in the pyloric end of the stomach or in the duodenum it would be quite possible to study the effects of ulceration on the rate of discharge from the stomach.

Before turning aside from the myenteric reflex and the diastalsis which it controls I should like to refer to some studies on intestinal pressures which have not before been reported. In the paper by Murphy and myself, already referred to, we called attention to the very vigorous contractions of the intestine which appeared above a point of obstruction. A recording apparatus fastened into the small intestine of the cat is itself an obstruction and can be used to register the degree of pressure which the intestinal musculature produces or is capable of producing. Records thus obtained by two of my students, D. N. Richards and H. E. Ruggles, have shown that the pressures in an obstructed region may vary between 60 and 120 mm. of mercury, and that when ergot and physostigmine are given, these figures may be greatly exceeded. So far as I know, these are the only observations on intestinal pressures that have been made, but they are far from being complete, and should be continued with special attention to conditions which affect the degree of pressure that can be developed.

The process of rhythmic segmentation in the small intestine also involves the factor of pressure, for each contraction momentarily compresses a mass of material which is enclosed between two other contractions. The pressure in rhythmic segmentation affects not only the intestinal contents, but also the radicals of the intestinal lymphatics and of the superior mesenteric vein. It is probable that the periodic contraction and relaxation of the wall of the gut is favorable to absorption, because the contents are thereby

[5] Cannon and Lieb: Am. Jour. Physiol., 1911, xxix, p. 267.
[6] Joseph and Meltzer: Am. Jour. Physiol., 1911, xxvii, p. xxxi.
[7] Goltz and Ewald: Arch. für d. ges. Physiol., 1896, lxiii, p. 381.
[8] Cannon and Murphy: Ann. Surg., 1906, xliii, p. 515.

stirred and mixed so that fresh matter is repeatedly brought to the absorbing surfaces, and because changes in the circumference of the gut must alter the relations of the villi to one another, now crowding them together, now separating them. No studies have yet been made, however, on the relative rate of absorption in a loop lying quiescent, and in a similar loop in which rhythmic segmentation is in process. And no studies have been made on the effects of this activity on the flow of blood or lymph away from the intestine. Inasmuch as these matters are of first importance to the body, the value of knowing more about them need not be dwelt on.

A good deal more work needs to be done on absorption. Does absorption occur equally well in the two parts of the stomach, or is it confined to the pyloric end where katastalsis mixes the chyme and exposes it thoroughly to the mucosa? What is the effect of anastalsis of the proximal colon on absorption of material from that region? Is the haustral churning, described by Elliott and Barclay-Smith, and seen by Schwarz [9] in the human large intestine, significant for absorption? How much absorption can occur in that part of the large intestine which is supplied with hemorrhoidal veins, — veins which do not carry the blood through the liver? May not general bodily disturbances occur from absorption in this region, just as they occur in animals with the Eck fistula when protein is given? Surely there is much to be done in this important field.

More significant than any of the problems thus far mentioned, I believe, is that which I touched upon in my address last year. Members of the Association will recall that I submitted evidence which indicated the fundamental importance of tonus for the movements of the alimentary canal. If the tonic state is absent, the movements will not occur; if the tonic state is too great, they will not occur; if there is a proper relation between the tonic state and internal pressure, i. e., if the proper tension is developed, then the various obvious movements naturally result. As I have explained,[10] the nature of tone in smooth muscle is not yet understood. We do know, however, that impulses by way of the vagi and the sacral visceral nerves are capable of developing tonus in the lower esophagus, the stomach and the small and large intestines; and that splanchnic influences are, in the main,[11] capable of reducing or abolishing tonus in this same territory. But these facts only throw the problem one step further back. We do not yet know enough about the factors determining the course of nerve impulses to be able to explain why certain pleasurable affective states, such, for example, as the delights of appetite, give rise to discharges by vagus pathways, and why other affective states, such as fear or rage, give rise to discharges by splanchnic pathways. Yet in the functioning of these nervous pathways we may reasonably assume that many of our difficulties arise, — the difficulties of excessive tone and the difficulties from diminished tone and atony.

There is the possibility also that the glands of internal secretion may play a rôle in causing disturbances of the tonic state. The secretion of the adrenal gland in excess affects the alimentary canal precisely as splanchnic impulses affect it, — by producing a total abolition of tone, and a consequent inhibition of all activity. Since epinephrin has this specific and characteristic effect precisely on one of the two opposing sets of nervous connections that govern gastro-intestinal tone, may not another substance, produced by another of the endosecretory glands, be capable of exerting the exactly opposite effect? The organization of the body, with checks and controls operating automatically, suggests the presence of these opposing chemical agencies. On that basis some of the difficulties that arise from increased tone or from spasms in the alimentary canal might be due to even more remote disturbances than we have thus far considered. A careful experimental investigation of the effects on digestive processes of excess and diminution of the internal secretions would be fairly sure to give interesting new results.

In the intimate connections of the digestive process with many other activities of the body lie the most significant and the most profoundly interesting problems not only of gastro-enterology and internal medicine as a whole, but of physiology as a special science. It is because of this interlacing of interests that we, as surgeons, and physicians, and specialists, and workers in the medical sciences, gather together each year in order to focus such light as we may throw on these more or less obscure features of our subject. Let us be thankful, therefore, that light is still needed, and that we are privileged to help in bringing some illumination.

[9] Schwarz: Munchen. med. Wochenschr., 1911, viii, p. 1489.
[10] Cannon: The Mechanical Factors of Digestion, London, 1911, p. 59.
[11] The lower esophagus and the sphincters are excepted.

Original Articles.

MEXICAN SCORPIONS AND THE TREATMENT OF SCORPION STING.*

BY LLOYD H. MILLS, M.D., ESPERANZA, SONORA, MEXICO.

INTRODUCTION.

Mexico is situated in the tropics and semi-tropics where scorpions are among the most troublesome of pests.

The incomplete and otherwise inaccurate records of this region give little or no idea of the incidence of scorpion stings or of the consequent mortality, and many confusing discrepancies have occurred, because observers failed to recognize the wide variations in virulence of the many species, or the conditions which modify the effect of their poison.

As an example of the confusion which actually exists, the author recently heard a discussion of

* This paper was written in Mexico under conditions which made impossible anything like a complete bibliography of the subject. Accordingly, there has been some duplication of experiments and observations and, unfortunately, specific credit for much excellent work already done cannot be given.

this problem by two American physicians of experience, resident in Mexico. One, living in Sonora, a northern state, had treated about 130 cases, all of which had recovered. He declared, didactically, that all deaths following scorpion stings were the effect of fright and of overtreatment with large doses of tincture of iodine and other drastic medicines given internally. The experience of the other had been largely in the much hotter territory of Tepic and he was equally positive that scorpion stings frequently caused death in the very young and in the debilitated.[1] Both observations were correct for the respective regions and the apparent contradictions were reconciled when it was learned that the virulent scorpion, Centrurus gracilis, abounds in Tepic and is practically unknown in Sonora.

Statistics of mortality from this source are very inadequate, many of the smaller villages having no physician and returning no mortality reports, or at best reports of no worth. I have seen the yearly national death-rate estimated at 4,000, a figure which is probably not greatly exaggerated. The French physician Cavaroz, who lived in Durango during the French occupation, gave the yearly mortality from scorpion stings in that city of 16,000, at between 200 and 250, or 1¼ to 1½% of the population, an extreme mortality in view of the ease of prevention. The deaths occurred almost exclusively in babies and small children.

A number of investigators have worked on the subject of scorpion stings, including Calmette [2] Charles Todd,[3] H. V. Jackson [4] and D. V. Lope.[5] The trend of their work has been the development of a serum or anti-venom, but so far as the author is aware, this work, though incomplete, has not yet proven a practical success. For some time Calmette's antivenine was heralded as a cure, but experimental work showed it to be worthless against scorpion venom.

OBJECT OF RESEARCH.

The primary object of this research was to find if changes existed in the cerebrospinal system commensurate with the marked symptomatic disturbances apparently centering there. The scope of the investigation was soon extended to include a short study on immunity and work on the treatment of the symptoms and conditions following scorpion sting.

The experimental work was preceded by a study of (*a*) the distribution, (*b*) the anatomy and (*c*) the habits of scorpions, these being matters of more or less common knowledge, but necessary to an intelligent understanding of the subject.

[1] A very considerable proportion of Mexican laborers in the "hot country" are in a condition of chronic malnutrition owing to the frequency of bacillary dysentery from foul water, to the inadequate kind and supply of food and to the wretched preparation of the little they get, to excesses in alcohol and venery, and to frequent attacks of malaria.

[2] Ann. Pasteur Inst. Lille.

[3] Jour. Hyg., 1909.

[4] Interstate Med. Jour., 1910.

[5] An. de l' Inst. Méd. Nac. de Mexico, 1906.

(*a*) DISTRIBUTION OF SCORPIONS.

Scorpions are common throughout Mexico, but are found in the largest numbers in the hot, humid littoral known as the "*tierra caliente*." They live in the deep cracks of the sunbaked clay, in rotting wood, beneath stones and, by election, in the chinks and cracks of the adobe and mud-and-thatch which, variously modified, are the ordinary construction materials of tropical shelters and homes.

Under favorable conditions their number may become enormous, and it is estimated that over 150,000 are killed annually in the rather small city of Durango, and with no appreciable diminution in their numbers.[6]

(*b*) ANATOMY OF THE SCORPION, WITH REFERENCE TO ITS MEANS OF STINGING AND POISONING.

Scorpions form the Pedipalpi order of the Arachnidæ. They resemble diminutive lobsters from ½ to 8 inches in length, with very strong prehensile palpæ. The last six joints of the segmented abdomen narrow into a tail which is usually carried, in a forward curl, above the back, but which can be thrown somewhat in advance of the body by a sharp lashing motion, in case of defense or attack.

This tail ends in a curved, horny spine containing two orifices which connect with the poison gland in the last segment. When the tip of the spine is clipped there exudes from 0.0005 to 0.005 gm. of clear, colorless and slightly viscid fluid resembling dilute glycerine, and coagulating slightly on heating. The quantity varies with the size and condition of the animal. When the legs and body are incised, droplets of straw-colored, opalescent fluid exude, this being the blood.

The color of the scorpion is brown, but the shade varies with the immediate environment, and almost colorless and translucent scorpions will become dark brown and opaque in a few weeks if placed in black surroundings.

(*c*) THE HABITS OF SCORPIONS.[7]

The scorpion is chiefly nocturnal by habit. It preys on spiders or insects, which it kills by repeated stings and by crushing with the heavy palpæ. Spiders so stung nearly always die in convulsions, or with curious twitches and movements resembling the convulsions of larger animals. For actual defense the sting alone is used, being lashed forward repeatedly and rapidly, though the other movements of the animal are not at all rapid.

The half-nude habit of the natives, and their custom of sleeping on the ground, freely expose them to scorpion and other stings. During the day, the use of riding boots and puttees protects the workers of the classes above the day-laborer, but unless cots are carefully screened and their supports kept immersed in a mixture of kerosene and carbolic acid (water evaporates too rapidly),

[6] The author has dislodged fourteen scorpions from beneath a single adobe brick while excavating in an ancient Indian village.

[7] As far as they have bearing on this paper.

one is reasonably sure to have a scorpion alight upon him from roof or tent-fly, and to find one or several between the covers, or disputing possession of his shoes and other clothing in the morning.[8]

The experimental inquiries came under the following headings:

(*a*) Can the poison injected by a scorpion produce death (1) in animals and (2) in human beings?

(*b*) What factors influence the action of scorpion venoms?

(*c*) Is there natural or acquired immunity to scorpion venom?

(*d*) What are the gross pathological changes of importance?

(*e*) The effects of spinal drainage in animals and of lumbar puncture in human beings gravely ill from scorpion stings.

(*a*) CAN THE POISON INJECTED BY A SCORPION PRODUCE DEATH (1) IN ANIMALS AND (2) IN HUMAN BEINGS?

(1) Among the *haciendas* of the "hot country" it is not an uncommon sight to see a hen fall dead and to hear the owner say, "Another scorpion! Well, it is the will of God!" Their experience has taught them to anticipate some loss of small stock from this source.

Experiment 2.[9] A mongrel puppy, weighing 1.78 kilos, was stung on the nose once and on the abdomen twice by a very active scorpion from Tepic, a Centrurus gracilis, which is the virulent scorpion of Durango and of parts of the neighboring states. He immediately became restless, rubbed his nose and bit at his abdomen. At 8.56, six minutes after inoculation, he began to swallow frequently and tried to paw at his throat as if to dislodge some occluding object. Constantly increasing quantities of glairy mucus flowed from mouth and nose, and he rolled his head from side to side. Dyspnea was noticed first at 9.09, accompanied by occasional short, sharp barks like the cries of a meningitic child. He staggered when attempting to walk, and at 9.30 vomited much thick mucus and defecated. At 9.55 convulsive twitchings were noticed in the extremities, and they were converted into a general convulsion by stroking the animal. For about an hour convulsions recurred with decreasing intervals of partial relaxation, until they merged into a continuous rigidity which lasted for about eight hours. During this time the dyspnea increased to where the respirations could scarcely be counted, the mucous membranes became intensely cyanotic and the temperature rose to 108 F. At 7 P.M. the clonic rigidity had lessened but did not entirely disappear until about an hour before the time of death at 9.20 P.M., twelve and a half hours after inoculation.

Death was apparently the result of asphyxia owing to paralysis of the respiratory center.

(2) CASE 5. J. M. L., an anemic and under-sized boy of twelve, was stung three times in the abdomen by a Centrurus gracilis, while sleeping. Apparently the scorpion crawled into the boy's clothing and, becoming excited by the reflex movement of the sleeper, stung him.

The symptoms were so typical that they are given in detail: Numbness, formication and a sense of thickness of tissue began immediately in and about the wounds and spread rapidly, chiefly upward toward the chest. He vomited once, felt anxious and very nervous and complained that his tongue felt "too big for his mouth." Saliva and nasal mucus increased, the eyes became suffused and photophobic, and the sensation of an increasingly large ball in the throat caused him to swallow frequently, to clutch at his neck, and to try to dislodge the distressing body with his fingers. Within about two hours he was very dyspneic and cyanosed, the respiration 48 and the pulse 136. The muscles of his legs, arms and face felt stiff and his head ached badly.

Although there was quite no reaction at the points of inoculation, they were incised freely and a continuous, light dressing strapped on and kept moist with alcohol. The second incision caused a general convulsion, during which the child did not wholly lose consciousness, but complained bitterly of headache, of deep pain in his eyes and of "cramps" in his extremities. Fifteen minutes later a second convulsion occurred, with unconsciousness. As it was impossible to give medication by mouth, hot saline enemas containing 3.0 gm. of potassium bromide were given in succession but were as often expelled during the convulsions. The hypodermic injection of 0.01 gm. of morphine sulphate started another convulsion, showing the extreme reflex response. Convulsions recurred for about three hours, with intervals of partial relaxation lasting from fifteen minutes to less than a minute, but gradually they merged into a condition of clonic spasm, with moderate opisthotonos. Coarse mucous râles appeared throughout both lungs, the breathing became extremely rapid and shallow, the pulse rose to 160 and the temperature to 106.8. Feces and a little urine were voided in the earlier convulsions. The muscular rigidity disappeared about two hours before death, which occurred about fourteen hours after the sting. The direct cause of death appeared to be asphyxia.

These cases demonstrate that scorpion venom may cause death in animals and human beings, the deaths following a train of symptoms all of which have apparently originated from cerebrospinal disorder.

(*b*) WHAT FACTORS INFLUENCE THE ACTION OF SCORPION VENOMS?

There are no exact data obtainable as to the number of species of scorpions in Mexico, but general experience has taught the native to disregard certain species and to flee from contact with others. In certain of the mountainous states, chiefly Durango, Morelos, Guanajuato and Southern Chihuahua, and in the entire littoral lying within the Torrid Zone, the species are of unusually bad repute. Durango, for example, is as much famed for the virulence of its master-scorpion, the Centrurus gracilis, as for its wonderful mines.

Experiment 3. To show the difference which may exist in the effects of the venom of different species, at the time of Experiment 2, a male pup of the same

[8] Much has been written of the suicide of scorpions by their own sting. The author has induced angry scorpions to sting themselves repeatedly by holding them lightly between thumb-forceps, and has never seen them die in consequence. Also in the terrific battles to the death so frequently seen in the specimen jars, the victor is always stung many times, but always survives, unless too severely torn by his opponent's palpæ. The usual end of these conflicts is a cannibal feast with the vanquished scorpion torn into small pieces and voraciously devoured. This resistance of the scorpion to its own poison has been the basis of use of scorpion blood in the preparation of an anti-venom.

[9] In these experiments the place and frequency of inoculation were directly under control by holding the scorpion between anatomical forceps.

litter, weighing 1.5 kilos, was stung repeatedly by one of the large scorpions common in Sonora. Although he bit and scratched at the wounds, his most urgent symptoms were a little dyspnea, some unsteadiness in walking and a light muscular spasticity. He refused food and water for several hours and within eighteen hours all symptoms had disappeared save a little muscular weakness and disinclination for food. By the third day he was again normal.

These two experiments with dogs show that there are marked differences in the toxicity of the venoms of different species of scorpions.

CASE 1. An old miner, F. V., accidentally picked up a Centrurus Mexicanus, one of the virulent species, and was stung twice in the left index finger. Apart from some slight numbness and parasthesia, which lasted for several weeks, no symptoms followed the sting and this case must be looked upon as one of a person resistant by nature to the effects of scorpion venom, for this same scorpion killed a rabbit within thirty-six hours.

CASE 4. A healthy young engineer was brought to me within three minutes of having been stung in the left forearm by a Centrurus gracilis, from description. He was pale, was perspiring freely and complained of pain and formication in and around the wound and spreading into the axilla. The peculiar sense of constriction had already commenced in the throat, yet within ten minutes after a small incision made at the point of inoculation and vigorous massage of the arm toward the incision, all his symptoms had vanished, leaving only a sense of muscular weakness which continued until the following day.

This case, in contrast to Case 5, given above, demonstrates the value of prompt and radical treatment.

Experiment 4. A young mongrel puppy was stung repeatedly in the abdominal skin by the same scorpion which had killed a puppy of the same litter in Experiment 2. This scorpion, however, had been made to sting a tightly rolled ball of cotton for thirty successive times just before this experiment.

The dog bit at his wounds for a few moments but was easily distracted into play and showed no toxic symptoms whatever, demonstrating that the degree of exhaustion of the poison gland may be a large factor in the results produced by inoculation.

In cold weather scorpions hibernate and are at their minimum of virulence. The author has handled sluggish scorpions in winter and has been stung once under such conditions without symptoms of any consequence, but he has seen the same species of scorpion produce most distressing symptoms in the months of great heat.

It is general experience, furthermore, that healthy adults never die from this source, but that the mortality is limited to the very young and the very old and to the debilitated.[10]

[10] There is no doubt that many deaths ascribed to scorpion poisoning are the result of repeated poisonous doses of tincture of iodine, carbolic acid and similar drugs given by the numerous "*practicantes*," who serve as physicians in the villages, and many people are carrying around extensive and most disfiguring scars from the local applications of every known escharotic.

(c) IS THERE NATURAL OR ACQUIRED IMMUNITY TO SCORPION VENOM?

Calmette and others have shown that the hedgehog and the cat are naturally immune to scorpion venom, and Case 1, mentioned above, is an example of human immunity, of which any observer in the tropics hears much and which he sees occasionally.

It has been a matter of much local discussion whether or not immunity can be acquired by repeated stings and recoveries. The author has never seen a convincing demonstration in human beings, though he has talked with several men who claimed to have received many severe stings and to have thereby gained immunity. They were invariably unwilling, however, to have that immunity subjected to actual proof.

In certain of the Mexican states there is a popular notion to the effect that the frequent ingestion of the solution in alcohol of the scorpions' bodies gives immunity to their venom.

This is possibly the Mexican counterpart of the old-time, liberal use of whiskey in certain parts of our own country as a "preventive for rattlesnake bites," and it is suspected that many a man in a scorpion-free home has perpetuated the legend because of the delights of the treatment.

The author has failed to obtain immunity in puppies and in rabbits by subjecting them to the stings of moderately virulent scorpions, with intervals of complete recovery between inoculations. Several times hopes were raised that a state of immunity had been achieved, but further inoculation proved them baseless.

Lope[11] claims to have produced a curative serum by a process of extraction of scorpion bodies in distilled water. He gives no detail of the method of production of the serum, but publishes three successful cases of its use in rabbits.

The fact that scorpions sting themselves repeatedly and viciously without harm, and that they are enthusiastic cannibals, gives ground for the belief that their blood contains protective substances. As it was impossible to duplicate Lope's experiments because of lack of detail, work was undertaken with scorpions' blood, obtained by clipping the legs in succession and patiently drawing the tiny droplets into a small glass syringe containing 2 ccm. of distilled water. To make 5 ccm. of the combined solution required the average use of twenty-nine scorpions.

Experiment 17. Two wild rabbits, each weighing about 2.2 kilos, were inoculated directly into the right ear vein by the same virulent scorpion, and both rapidly developed the typical picture of severe poisoning. An hour after the inoculation, the rabbit which had been stung first received 5 ccm. of the solution of scorpion blood into the left ear vein, the other rabbit being used as a control. The control died in about fifteen hours and the other in about twenty-two hours.

This experiment was modified, Experiment 18, by giving 5 ccm. of the solution into the ear vein immediately after the inoculation and repeating this dose in two and four hours, the rabbit receiving a total of 9 ccm. of scorpions' blood, or about 4 ccm. per kilo

[11] *Loc. cit.*

of body weight. The control rabbit died in eight and one-half hours, while the animal which received the scorpion's blood not only ran a much less severe course from the start, but recovered completely within forty-eight hours.

The next case of scorpion sting, Case 27, seen after this experiment, was a baby of eleven months, weighing 8.1 kilos and seen about an hour after inoculation. It was moderately ill and with typical symptoms. No incision was made as no local reaction disclosed the point of sting. The child received four injections of 5 ccm. of the solution of distilled water and scorpion blood at intervals of a half hour, or a total of 1.5 ccm. of blood per kilo, and after the third injection dyspnea, cyanosis and the excessive oral and nasal secretion had lessened appreciably. Weakness and lethargy continued for about two days.

There is little doubt but what this patient would have recovered from the poisoning unaided, but the improvement began at the time when the symptoms are ordinarily most severe, and the recovery appeared to be much hastened by the treatment.

These results seem to confirm the work of Lope, whose extract must have contained a considerable proportion of the scorpions' blood.

The practical disadvantages of the method are manifest. To collect 12 ccm. of blood requires at least one hundred scorpions and several hours of patient work, and scorpions, although plentiful, are not always available in quantity, while the promptness of treatment has already been shown to be a factor. The blood also decomposes after about twenty-four hours of exposure to the air.

(*d*) WHAT ARE THE GROSS PATHOLOGICAL CHANGES OF IMPORTANCE OBSERVED AFTER DEATH FOLLOWING SCORPION STINGS?

Outside of the larger cities, ignorance and religious prejudice make it almost impossible to obtain autopsies. In two human beings, one a friendless old man of over seventy, who died three days after being stung, and the child reported as Case 5, a superficial examination of the cerebrum and a small portion of the cord were permitted. This lack of material was overcome by thirty-eight autopsies on puppies and rabbits, these animals showing pathological pictures of the same kind as shown in the human examinations.

The cerebrospinal system, apparently the elective center of activity of the scorpion poison, exhibited changes of a marked and nearly uniform character, as follows:

1. Marked engorgement of the vessels of the pia of brain and cord, with occasional petechiæ.
2. Engorgement of the great sinuses of the dura.
3. The presence of very excessive quantities of fluid in the subarachnoid spaces of brain and cord, producing a condition of serous meningitis.

This fluid was clear or very slightly turbid, was colorless, became slightly turbid on boiling, reduced Fehling's solution in but three cases and the field of an average film contained 67 polymorphonuclear leucocytes and 2 mononuclear and 5 endothelial cells. The quantity varied in the animals from 11 ccm. in a small rabbit, to 38.1 ccm. in a rabbit of 2 kilos, but the amount was so out of proportion to the normal amount of cerebrospinal fluid found in these animals, an amount often too small to be measured, that it leads directly to an explanation of the symptoms, as the product of the intense pressure of a serous meningitis, caused by the elective, irritant action on the cerebrospinal tissues, of a neurotoxic poison contained in scorpion venom. In thirty-four out of thirty-eight autopsies in animals absolutely no local reaction at the point of inoculation was found, the other four cases exhibiting a moderate vascular injection and edema, but without enlargement of the lymphatic glands.

No abnormal changes were seen in the blood, such as laking or excessive clotting, nor were there gross changes in the arterial walls as are produced by the highly toxic hemorrhagia of rattlesnake venom.

The mucous membrane of the nasopharynx was greatly congested and covered with thick ropes of mucus.

The thoracic and abdominal viscera were intensely congested, large and soft, as is common in asphyxia, but beyond this showed no macroscopic changes.[12]

(*e*) THE EFFECT OF SPINAL DRAINAGE IN ANIMALS GRAVELY ILL FROM INOCULATION WITH SCORPION VENOM.

Experiment 21. A month-old puppy and an old jack-rabbit were stung a number of times by several virulent scorpions and in nine and five and one-half hours respectively were apparently moribund. Spinal puncture could not be performed because of too close approximation of the vertebræ and too large a needle. Accordingly, the eleventh and twelfth dorsal and first lumbar laminæ were removed in each case, without anesthesia, the animals being unconscious and immobile. The dura bulged into the wound and on nicking it a jet of clear, colorless fluid escaped. The puppy died at this stage of the operation because of the too sudden relief of the pressure, but the rabbit's dura was tapped and the fluid allowed to escape drop by drop until 26.3 ccm. had escaped. The needle wound was then closed by a single suture of No. 00 catgut and the osteoplastic flap sewn in place with No. 1 chromicized catgut. A tight swathe was applied over a sterile dressing. Before the dressing was concluded, nearly complete motion and partial consciousness had returned. The animal made an uninterrupted recovery, although it was very quiet for the first four or five days, due, apparently, to the muscular soreness. After two weeks he was set free.

This success was followed up immediately by the application of lumbar puncture to grave cases of poisoning from scorpion venom.

Among 61 cases of scorpion sting in human beings, the author has used lumbar puncture in 5 cases. It is his opinion that all of these cases would have died had they not received relief from the intracranial pressure. These cases were all in children aged ten months, ten and one-half

[12] It is planned to make a separate histological study of all the viscera in order to determine if, hidden by the asphyxial congestion, the toxin has had the direct action of an irritant, as it appears to have had on the cerebrospinal tissue.

months, one year, two and one-half years and nearly three years. All made complete recoveries, although the two and one-half year old child collapsed after the puncture because of too rapid relief of the pressure. The three year old case was tapped twice and received as well 4.3 ccm. of the solution of scorpions' blood in distilled water, all that could be obtained at the time.

In each case lumbar puncture was performed at the third lumbar interspace and without anesthesia, owing to the unconsciousness of the patient. Fluid was withdrawn to the amount of 45 ccm. in the three year old child, and the average amount withdrawn was 29 ccm. In all the cases, save that of the child who collapsed, the improvement which followed the lumbar puncture was fairly immediate and so marked as to leave no doubt of the efficacy of the procedure in these otherwise fatal cases.

THE PROPHYLAXIS OF SCORPION STING.

Prevention is at present more or less impossible, among the ignorant and migratory peon class, but in all settled communities it would be practically complete and a scorpion sting should be looked upon as a matter of negligence. In cities the chief haunt of scorpions is in the cracks of the plastering and of the adobe walls. Of course it is negligence alone which prevents the elimination of these natural homes of the scorpion and the boards of health of all infested cities should be empowered to make regular inspections, and to fine those careless householders who fail to protect themselves and the community at large by so simple a means.

Houses with earth floors should be fumigated from time to time with sulphur, the fumes of which not only kill scorpions, but also centipedes, mosquitoes, flies, bugs and the similar swarms of pests which still make tropical life a fight, in those places which are not, as yet, well under the influences of modern hygienic prevention.

SUMMARY AND CONCLUSIONS.

A. The sting of a scorpion can cause death in animals and in man.

B. The effects produced by the sting of a scorpion depend upon (1) the species of scorpion, (2) the natural resistance of the victim, (3) his age, (4) his condition of health, (5) the time of year, (6) the degree of exhaustion of the scorpion's poison gland, (7) the time elapsing before treatment is received, (8) the treatment itself.

C. Certain human beings appear to have a natural resistance to scorpion poison.

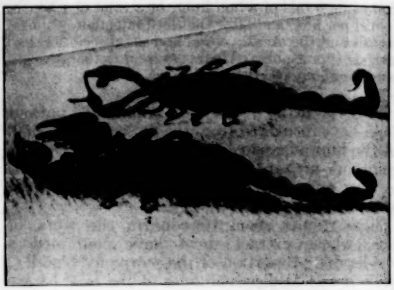
There is no proof that immunity to this poison can be acquired by repeated inoculations.

Scorpions' blood contains protective substances which render the scorpion immune to its own poison. These substances, if injected early and in sufficient quantity, aid markedly and promptly in relieving the urgent symptoms in human beings following scorpion sting. At present the use of scorpions' blood in quantity is impractical. It is not yet proven that the injection of the blood or of the extract of the bodies of one species of scorpion will aid in producing resistance to the poison of all other species.

D. The conditions following severe poisoning by a virulent scorpion are, symptomatically and pathologically, those of a grave serous meningitis.

E. The treatment of scorpion sting varies with the severity of the symptoms. In general it consists of —

1. Simple incision and the local use of evaporating lotions.



2. In severe cases, incision, combined with lumbar puncture, which may be repeated if necessary, and the repeated hypodermic injection of scorpion blood to total about 1 ccm. per kilo of body weight.

3. The internal administration of stimulants such as black coffee and aromatic spirits of ammonia, or hypodermic and rectal stimulation if unconscious.

THE IMPORTANCE OF DIFFERENTIATING CATARRHS OF THE LARGE AND SMALL INTESTINE.

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THE choice of this word "catarrh" is an unfortunate one, though based on usage so long and universal that to question it seems like heresy; it is based almost wholly on the presence of mucus in the stool, but we have learned that such a slight disturbance of the intestinal canal as a good purge can produce mucus abundantly in the stool; hence a pathology based upon such an evanescent groundwork can hardly have much stability. Nevertheless, Nothnagel, who probably had as much experience as any one who has investigated this subject, declares that in no normal person with normal defecation has he ever seen either macroscopic or microscopic traces of mucus; furthermore, as a corollary to this statement he insists that the slightest traces of mucus in the stool shows a departure from physiological conditions, so on the principle that "he that is not for me is against me," mucus in the stool must be pathological. Yet it is clear to me that the term "catarrh" is not always synonymous with enteritis, even if of the chronic

form, for the mucus in a true enteritis is studded with granular epithelial cells, some with and some without nuclei, while we often run upon a stool filled with numerous shreds of mucus or even made up entirely of mucus where barely an epithelial cell rewards our search; these are the forms where the discharges of mucus are periodical and associated with much pain; assuredly they must be due to a different causative influence than the catarrhs associated with true enteritis which prove so prostrating and cause such emaciation. Apparently the same difference exists between the two conditions as exists between an asthma and a true bronchitis or a renal hyperemia and a nephritis. As patients never die from these minor forms of intestinal catarrh, it is only when a concurrent fatal illness gives us a chance at an autopsy that we have an opportunity to investigate the condition of the intestine.

Nothnagel, who had more of these opportunities than almost any one else, always found pathological changes where mucus was at all abundantly present in the stools during life, but did not always find mucus when the autopsy showed marked changes in the intestinal mucous membrane. From his close comparison, however, of the findings in the stool during life with the condition of the intestine after death we learned much more than the mere significance of mucus, we learned roughly to detect what portion of the intestinal tract was affected, whether the large or small intestine; farther than this he was unable to go, and although nearly thirty years have elapsed since his work was first published, we are no nearer the goal, — a closer localization of an inflammatory process in this elongated alimentary tract. There can be no question but that in the cecum there are inflammatory processes which cause pain and discomfort, often pose as appendical inflammation, and are needlessly operated, but no examination of the stool, however skillful, has been able to detect this condition. There must be a period when every sigmoid cancer, its usual site, produces more or less changes in the stool before it can be detected by palpation or the recto-romanoscope, but from our examination so far we are limited to the statement that the difficulty is in the large intestine. Duodenal ulcer and adhesions of jejunum or ileum must produce changes in the stool before the dangerous hemorrhage or total obstruction; still, from the microscopic examination of the stool we can only declare that there is a catarrh or chronic enteritis localized anywhere in the twenty feet of the small intestine.

Now we may well ask ourselves whether with these limitations it is worth while to devote much time to the separation of the catarrhal affections of the small from those of the large intestine, and, furthermore, how accurate those means are by which we make this distinction.

It used to be thought that we could detect the presence of a chronic enteric catarrh by the number of dejections, but Nothnagel called attention to the nervous diarrhea which is extremely erratic in different individuals but pursues a fairly regular course in the same individual; for instance, one person is aroused early in the morning by the desire of defecation and three or four loose stools follow without pain, and then a pause follows until the same hour the next morning; others are often interrupted in the midst of a meal, usually the midday one, by two or three loose movements, which then cease and there is no recurrence until the next day at the same time; a careful examination of the stool at such a time fails to show any evidence of impaired digestion of any of the food products, nor is there any mucus present. The persons so affected usually belong to the indefinately termed "nervous" class, who show other manifestations of disturbed reflexes. The following case illustrates very well this condition.

1. M. J. was a widow, forty-nine years of age, who passed the climacteric at thirty-two years of age. Soon after that she went through a rheumatic fever which confined her to bed for seven months and left her with a partially anchylosed right knee. Two years ago she lost her husband by a fatal accident which occurred in her presence. Since then she has been very nervous, as she describes it, is very apprehensive and suffers at times from facial neuralgia. About six months ago she began to be aroused from sleep at three o'clock in the morning by desire for stool, and there were three to four loose movements, of a light color and frothy consistency. Then she was free from difficulty until the next morning. During the day she suffered no discomfort, had no pain and a good appetite. At times she has suffered from dizzy attacks. She has formed the opinion that she suffers from intestinal tuberculosis, though she is a blooming, well-nourished woman.

Examination showed a very excitable, rapidly talking woman with excellent teeth and clean tongue. Heart and lungs were without significance; the abdomen was lax without tenderness, and the stomach was in normal position but the right kidney was palpable. The anus was somewhat reddened, but there were neither hemorrhoids nor a fissure. Her weight was 132 lb., which she said was normal. After she had been three days on the Schmidt diet a stool was obtained of which a portion was semisolid and the rest liquid. The stool showed many gas bubbles on its surface and some meat fibers with distinct striæ and a few fat globules but no mucus whatever. Rigid dieting, astringents and intestinal sedatives were tried in vain until a sojourn in New York with the attractions of the Great White Way brought complete relief.

Frank, uncomplicated catarrh of the small intestine is usually associated with marked diarrhea, but, if complicated with a catarrh of the colon, we may as often have a hard stool which demands laxatives or the clyster for its passage. The following case illustrates very fully this condition.

2. A. H. was a bachelor, thirty-three years of age, who from boyhood had had periods of indigestion, characterized by pressure after eating and eructations of sour-tasting fluid two hours after eating. In the meantime there were intervals of three or four months when he was free from difficulty. His brothers and sisters are all sufferers from "stomach trouble." His appetite was erratic and he sometimes suffered from nausea, but his chief complaint was a feeling of discomfort in the lower abdomen, which he could not call

pain, but which made him feel "rotten," and no more definite description could be obtained. His bowels never moved without laxatives and he had an encyclopedia of laxatives in the form of the various prescriptions that had been given him by physicians as well a words of praise or condemnation for the various nostrums on the market.

Examination showed a tall, thin man of the general type described by Stiller, with narrow chest, almost pigeon breasted, and sharp epigastric angle. There was no fat in the abdominal walls and evidently the muscular development was impaired. The tongue was heavily coated, the teeth were good and the heart and lungs normal. There was succussion in the stomach twelve hours after a meal and the stomach extended 2½ cm. below the navel with the upper border 16 cm. above this, but there was very little extension beyond the median line to the right. There was no tenderness, but the colon could be felt in the sigmoid region contracted like a cord. Upon filling the colon with water the transverse portion was found well below the navel while lying down and on standing extended nearly to the pubis. After a test breakfast the gastric contents, which could only be induced to flow by inserting the tube much beyond the usual extent, gave acidities of 40 and 69 and contained abundant mucus. After the use of the laxatives had ceased another examination of the gastric contents gave acidities of 22 and 58. The stool on a Schmidt diet was semi-solid in consistency, containing many scybalæ which were so hard that they could be disintegrated only with difficulty, but were found at last to have imbedded in them much mucus which had numerous granular cells attached, free from nuclei, which indicated their origin from the small intestine. In addition, there were numerous fatty acid needles and striated meat fibers, but no starch. The stercobilin was present in normal amounts. Flushing the lower colon washed our many shreds of mucus unmixed with fecal matter, which also contained many granular cells, but these had nuclei. The fasting stomach had no residue, but the washings gave a marked HCl reaction.

After a long period devoted to trying to overcome this condition without recourse to laxatives, which always increased the acidity and acid eructations, the patient's belief in such treatment failed and he drifted out of my care and probably back to his laxatives which produced temporary relief of the constipation, which to him was the greater evil.

From these two cases we learn that diarrhea does not always indicate an intestinal catarrh nor does constipation exclude it. In the latter case how much of the disturbance of the small intestine is due to the persistent use of laxatives cannot be told.

Nothnagel's classification, which is good as far as it goes, is as follows: (1) Constipation with pure colon catarrh, (2) diarrhea with catarrh of the small intestine, (3) alternation of diarrhea and constipation, (4) usual number of stools daily but mushy or pasty. While the author does not state the fact, it has been my personal experience that the last two forms are more often associated with a combined catarrh of both divisions of the intestinal tract. Now we have added very much to the accuracy of this localization by the microscope and the colon washing. If mucus is abundant, but no food remnants remain in the stool on microscopic examination, we are assured that the colon only is affected. If both food remnants and abundant mucus are present, we are not so sure of the involvement of the colon in the process. This we can ascertain by attaching a glass funnel to a colon tube which is introduced as far as water will flow through it — if passed too far it will reach the sigmoid and double on itself — and after pouring a pint of water into the funnel, let it run into the intestine and by lowering the funnel run out several times; practically no feces will come out, but if there is a colon catarrh, each time the water flows out, it will be found to be more and more filled with shreds of mucus, which float about in it. Now if one of these shreds be placed upon a slide and a little coloring agent added (I employ a mixture of brilliant green, 0.6; neutral red, 0.3, and water, 30), the mucus and the epithelial cells will be distinctly stained, the mucus red, and the cells, green, except the nuclei, if they contain them, which will be red again. This presence of nucleated cells is the best proof of the origin of the cells from the colon, since if they come from the small intestine the nuclei are usually destroyed by digestion.

Again there are associated conditions which will aid us in determining which portion of the intestinal tract is affected; for instance, if on examination of the gastric contents we find an achylia, it is much more certain that the catarrhal condition is confined to the small intestine. The same inference can be drawn from an impaired motility of the stomach; in fact, very few who suffer from this difficulty escape an associated impairment of the intestinal digestion, as can be easily determined by the numerous fragments of food found in the feces as well as the minute cell-studded fragments of mucus. On this condition may be, perhaps, based the evidently impaired nutrition found in such individuals, for though Von Noorden has shown that diminished secretory activity on the part of the stomach may cause no change in the normal metabolism, this is not true where the food remains unduly long in that organ. I recall one case in which fifteen pounds were gained in a few weeks without any increase in the amount of food taken, following a gastro-enterostomy in a patient whose stasis though considerable was never sufficient to produce a twelve-hour residue after a Riegel evening meal. When so-called gastric catarrh or that condition where the gastric contents after a test breakfast are so mixed with mucus that it is often difficult to pour a portion from one glass to another, and where the use of a measuring pipette is impossible, is present, an accompanying intestinal disturbance is usually confined to the small intestine. Such a case is under my care at present in whom vomiting of almost pure mucus without a vestige of food products often takes place at night, accompanied by pain which follows rather than precedes the vomiting, and in the vomitus not a trace of free hydrochloric acid can be found, though after the test breakfast the acidities are 25 and 63, with the same copious discharge of mucus. Here the stool gives every evidence of a catarrh confined to the small intes-

time; this condition is unquestionably secondary, but the patient's appendix has already been removed while the patient was under the care of another physician in an effort to solve the mystery without relief, while marked tenderness over the gall bladder and a trace of bile in the urine indicate that another surgical interposition must take place before the problem is solved. This operation showed that the lower duodenum was compressed by an adhesive band, while the duodenum above the obstruction was very much dilated and congested; the constrictive band was severed and as a further protection against a recurrence, at the suggestion of Dr. A. J. A. Hamilton, who performed the operation, a gastro-enterostomy was done. Sufficient time has not elapsed to determine whether permanent relief has been secured. Absolutely no scar was found in the duodenum to indicate that the patient had suffered previously from a duodenal ulcer; in fact, the constriction was much below the usual site of such an ulcer.

When intestinal catarrh is present, associated with general enteroptosis, it is much more liable to be confined to the large intestine; the reason for this is, probably, that on account of its size, lack of efficient support and the enormous accumulations of feces which it may contain, the colon becomes more distorted than the small intestine and its changed position increases the impairment of circulation of the blood, a condition very favorable to the excessive secretion of mucus. True, Zweig would have us believe that the mucous colitis which so often accompanies coloptosis is not dependent on the displaced colon, but on the general nervous condition, limited to the intestinal tract, from which the patient suffers, but as it has been my experience that the mucus is not generally found until the ptosis is well established, I cannot but believe that the one condition is dependent on the other.

The following case illustrates this condition very well.

3. G. C. was a male, twenty-nine years of age, who at ten years of age had caries of the spine for which he wore a cast for two years. Three years ago he had a fistula in ano which still discharges on violent exercise. Six years ago he had pain in the abdomen and swelling (fluid?) which confined him to the bed for several weeks. At present he has eructations of gas which begin shortly after eating and continue until the next meal. He feels better after food is taken for a short time. He has no pain but there is a sense of fullness in the region of the stomach. His bowels never move unless laxatives are taken and he has headache, if he allows his bowels to become confined. He sleeps fairly well, but is often aroused from sleep with this sense of pressure and must sit up in bed, when extensive eructations of gas occur which give relief. He never vomits, and eats little meat because he feels worse after eating it. Physical examination showed a very thin, almost emaciated looking man with little color and a heavily coated tongue. His weight was 129 lb., his heart and lungs were without any abnormalities, but his stomach extended from the sixth rib to the navel, with marked succussion at the navel three hours after his midday meal, a light lunch, and the gastric tympany extends well to the right of the median line, pushing up the ordinary liver dullness two finger spaces from the costal border. Upon introduction of the colon tube and washing out the colon, abundant mucous fragments were removed without fecal matter but well studded with epithelial cells containing nuclei. Upon introduction of a liter of water followed by five minutes in the knee-chest position the borders of the colon could be easily made out and, in the median line, was found with its upper border two fingers below the navel with marked succussion over the sigmoid region. On a Schmidt diet the stool was pasty, dark colored, acid in reaction and contained a large number of striated meat fibers and many starch granules but no fat nor partially digested, intimately mixed mucus. One hour after a test breakfast 200 ccm. of poorly digested gastric contents were withdrawn, of which 53% (centrifuge) was solid and which formed three layers containing a large amount of mucus. Free hydrochloric acid was present and the acidities were 45 and 79. The x-ray picture showed the low lying stomach, and there was some bismuth residue remaining six hours after the bismuth meal was taken but it did not show the marked extension of the stomach to the right of the median line.

This failure of the x-ray picture to correspond with the clinical findings by percussion at the right of the median line was at first puzzling, but Mayr in his new work on intestinal atony just out declares that this marked tympany in the right upper abdomen, extending under the costal arch, is not due to stomach at all, but to the coils of the small intestine which are atonic and distended with gas, and differs from the tympany of the stomach by being more drum-like in tone. If this is universally true, then we have an excellent method of differentiation between atony of the large and small intestine, a condition which according to Mayr, is always preceded by a chronic inflammation of the affected intestinal portion. The sequence would then be, first, an inflammation of a section of the intestinal tract, then a consequent thickening of the mucous membrane, which is from this cause continually producing an exaggerated secretion of mucus and inhibiting those nerve centers of peristalsis which are situated in the intestine itself.

Again, where amebæ are found in the stool with mucus, the difficulty is usually confined to the large intestine. There has recently been under my care a young man who as a student in Italy ten months before I saw him went through a severe dysentery with bloody discharges and severe tenesmus and whose stool at my examination still contained abundant motile amebæ and from whose colon large amounts of mucus could be washed out, yet neither from the examination of the stool nor from physical examination could the slightest evidence be adduced that the small intestine was in any way involved. Whether these amebæ had been the original cause of his dysentery or whether the condition of his colon had provided a suitable site for their subsequent growth cannot, of course, be stated with certainty, but repeated colon injections of quinine hydrochloride removed them with decided improvement in the patient's condition. If an intestinal catarrh be associated with hemorrhoids, it will

usually be found that it is confined to the large intestine; as illustrative of this statement I offer the case of a man in whom there was an almost cauliflower-like mass of hemorrhoids which were external and not in an active state of inflammation, which so obstructed the anal orifice that a colon tube was introduced with difficulty. He complained of a colicky pain in the left iliac region, which at times, according to his statement, was excruciating. When the colon was filled with water the sigmoid slopped like an atonic stomach, and above in the ascending colon a cord-like mass could be rolled under the fingers and rigidity could be easily produced by gentle friction so that it was undoubtedly the colon itself. The bismuth paste passed this narrowed point as the subsequent x-ray picture showed, leaving a marked narrowing of the caliber of the gut at this point, but there was none of the ragged outline observed when malignant disease is present, particularly when it begins to ulcerate, nor was blood ever present in the stool. The usual combination of the succussion below the rigid narrowed portion led to the opinion that a relaxed, kinked sigmoid was present, presenting obstruction to the passage of feces, since the only symptom outside of the colicky pain was a steadily increasing difficulty of moving the bowels, which had been combatted by heroic doses of laxatives. Large amounts of mucus could be washed out of the colon unmixed with fecal matter, but an examination of the stool showed that the small intestine was not even functionally involved. As operative intervention was refused, considerable relief was afforded by the Fleiner oil injections, but the rigidity of that portion of the colon to the palpating hand still persisted. Mayr considers that the very fact that such a portion of the intestine undergoes rigidity on friction militates against malignant disease, since a cancerous involvement of the intestine soon invades its muscular coat and prevents it from contracting.

The value of the presence of increased indican in the urine as separating the catarrhs of the large and small intestine is still under dispute, but in my opinion, apart from acute obstruction of the intestine, it has but little value; from my experience it appears increased much oftener when the small intestine is involved in the catarrhal process and rarely when the colon alone is involved, but there are so many mixed forms that this evidence is of little worth.

In the first place we must consider that our diet for the patient must differ according to which portion of the intestine is affected; it would never do to try to stimulate an atonic colon with a diet rich in cellulose, if the small intestine was involved, which demands the blandest and least irritating form of food and that which is most easily absorbed; the mere fact that for days during hunger there is a daily stool shows that in spite of Schmidt's opinion we may secure regulation of the stool when the diet is liquid or consists of chopped meat, vegetable purées, bread and light puddings; in general, this is the diet par excellence for catarrhs of the upper portions of the small intestine. In later years I have become skeptical of the value of cellulose-containing food or the fodder vegetables, as some with a grain of concealed contempt call them, even in colon catarrh, for while they form a large residue, since they have no food value, yet they form a most prolific nidus for the growth of bacteria in the great intestine which in their destruction of the cellulose set free large quantities of gases which distend and increase the obstacles which an atonic gut is trying to overcome. It has always seemed to me that milk, sugar, fruit juices, molasses and honey would accomplish as much as radishes, celery, lettuce and pickles, and when the latter were effective in stimulating an intestine, it was more due to the vegetable juices than the cellulose which they contained.

As for medicinal treatment, too, the two conditions call for a distinctly different method of attack; while the tannin preparation, the bismuths and pancreon have a limited value in subduing the irritated condition and increased peristalsis of the small intestine, in my experience they have never been of the slightest value in controlling a colon catarrh. The opiates also, including their derivatives, heroin, codein, etc., have never seemed to me to have any curative value in either condition, though they produce a false sense of improvement by quieting the peristalsis and giving a feeling of comfort to the patient thereby. Paramount in the treatment of the catarrhal conditions of the intestine are the physical means, the hydrotherapeutic measures, massage and electricity, and here again, above all means, must a careful separation of the affections of the large and small intestine be made. It would be as futile to attempt to treat a duodenal catarrh with colon washings and oil injections as it would to attempt to influence a colon catarrh with hot compresses when the much more available method of direct application by rectal injections is before us. In fact, the general principle of treatment is to stay the peristalsis in the upper intestine and thus promote absorption and to stimulate activity in the lower portion in order to remove the stagnating material as rapidly as possible. Hence it may readily be seen that treatment adapted to one portion may even be harmful in the other. The cold needle spray upon the abdomen is vastly beneficial to an atonic stomach and to a sluggish colon, but usually aggravates a duodenal catarrh, even if it is chronic. This marked distinction in impairment of function can be no better illustrated than by the fact that patients who suffer from affections of the upper intestine are usually under weight and show plainly the evidence of malnutrition, while those with catarrh of the lower bowel may be in an excellent state of nutrition, in fact, are often obese. The whole matter, then, sums itself in this principle, that the intestinal portion involved must be accurately determined and then the appropriate treatment applied. Moreover, in those instances where both portions are affected and, it must be confessed, they are

not rare, we must attack the enemy from both positions, but no longer treat the symptoms of diarrhea and constipation without a knowledge of the underlying conditions. We might equally as well treat the condition of dyspnea by the same means, whether due to emphysema or cardiac dilatation.

Clinical Department.

TRAUMATIC RUPTURE OF THE DIAPHRAGM, WITH OTHER INJURIES: OPERATION: RECOVERY.

BY F. J. COTTON, A.M., M.D., BOSTON.

G. McN., aged forty-two, carpenter, was brought to the City Hospital Accident Room on the morning of Aug. 8, 1910, within a half-hour after the accident. He had fallen from a roof, said to have been about forty feet in height, and had landed on his left side on a wooden picket-fence.

I chanced to be in the hospital at the time, and saw him within a few minutes after he was brought in. He was then in no great pain, and surprisingly slight shock was evident. His temperature was 97°, his pulse 100, of fair quality. He showed some pallor, but not much. The left side showed a wound (packed with an emergency gauze-dressing before he was brought to the hospital) extending from the region of the ninth rib (near its tip) nearly to the iliac crest. When the packing was removed a coil of large intestine protruded.

The condition was explained to him and operation advised and arranged for without delay, without even the delay of a prolonged physical examination, for, though little hemorrhage was obvious, it was impossible to say how much damage had been done inside the abdomen.

He was immediately etherized, and an emergency sterilization was done with alcohol. The descending colon was exposed and protruded through the wound. This bit of gut was bruised and ecchymosed and the peritoneal coat on its front was extensively torn, but there was no complete bowel rupture. The wound was enlarged upward, and the distal fragments of the broken eighth and ninth ribs were removed, simply to make room and to save trouble. The spleen was found to be extensively torn; there were several tears extending well in from the surface, but it was nowhere torn through, and as it chanced to be a spleen of the small, tough, fibrous, bluish, heavy-capsuled sort, it had bled and was bleeding but very little.

Further exploration showed a state of things that puzzled me for a moment, but the puzzle was soon solved. There was a big tear in the diaphragm, neatly plugged by the stomach, part of which had been forced into the chest-cavity.

Exploration with the hand through the torn diaphragm showed the top of the herniated stomach at about the level of the third rib. The stomach was so distended that puncture with a trocar, to evacuate the gas-contents, was necessary before anything more could be done. The puncture-hole was sewed up, and the stomach dragged down into the belly. The diaphragm tear was then found to run nearly fore-and-aft; it was between four and five inches long. Suture of the diaphragm with heavy catgut sutures (single stitches) was then carried out, not without difficulty, for it was necessary to insert a suture on one side in one inspiratory phase, to wait for the next respiration before completing the stitch, and again to wait for the third before trying to tie the suture. At last an air-tight closure was effected. The effort (apparently successful) was to leave the pleural cavity filled with air in an amount that would correspond very nearly to that present with the diaphragm *down* (in inspiration). This was done because it was realized that a pneumothorax was inevitable and was relatively unimportant, and that the danger lay in a tearing out of the sutures in the diaphragm by the increased intra-abdominal pressure likely to come from distention of the intestines.

For the same reason it was decided to drain rather than to repair the damaged descending colon; the gut was in good enough condition to get well, but was so bruised that it was almost certain to distend during the early days after operation. Accordingly, a glass "Mixter tube" was sewed into the descending colon just below the spleen in the usual manner, and to it was attached a rubber tube to drain the gut-contents over the side of the table. Three tears in the peritoneum of this part of the colon were repaired with Pagenstecher sutures.

The spleen called for little attention. It seemed best (or at least simplest) to pack the tears with gauze; this fully controlled the hemorrhage.

What little free blood was in the abdominal cavity was washed out, and the abdominal wound was then sutured by layers, leaving only a space to give exit to the shank of the Mixter tube, and to the strips of gauze, the ends of which were packed into the tears in the spleen.

The patient showed but little operative shock.

Next day he was comfortable, complaining only of thirst, and was in excellent general condition.

There was slight abdominal distention on the second and third days, but it was never troublesome. The wicks leading to the spleen were removed on the third day. The results of enemata were satisfactory. At this time the enterostomy tube had drained little besides gas.

On the fifth day there began to be a copious discharge of fluid feces through the tube. There was some pus discharging alongside the tube.

Owing to a slip-up in the dressings the tube was allowed to sink in too far, and twelve days after the operation I removed it with some difficulty, leaving a fecal fistula. Four days later, however, he began to pass feces by the rectum and from this time (sixteen days) on, the fistula remained closed.

At three weeks the wound was clean and small, and he was allowed a bed rest.

Five days later he was up, and on the thirtieth day he was discharged from the hospital with only a small, clean, flat, granulating wound.

During all this time he had been in excellent condition and had suffered no pain.

The day after the operation his temperature reached its maximum of 100°. For two weeks there was ½ to 1½ degrees of temperature; after that a normal chart.

One point of interest in the case was the behavior of the pneumothorax.

Dr. R. C. Larrabee, of the medical service at the City Hospital, kindly examined him, and reported as follows:

"Aug. 20, 1910: The left chest in front is markedly tympanitic. The heart could not be percussed to the left of the sternum. The heart dullness extends two inches to the right of the sternum, over which area the heart can be clearly heard. The tympany of the chest extends 2 *cm.* to the right of the sternum. Back not examined. Over the tympanitic area respiratory sounds are nearly absent. No coin or succussion sound."

"Aug. 26, 1910: Very much improved. The heart can now be percussed to the left of the sternum, though it is not in its normal position. Tympany over the

left chest is less marked than before, and the respiratory sounds, though diminished, are easily heard. There are a few râles in the left base."

Which simply shows, what has long been known (though often forgotten), that a *clean* pneumothorax doesn't amount to much, and can be trusted to take care of itself in a few weeks.

I did not see the man again until six months later, when he reported (in response to a letter of inquiry) to say that he was "as good as ever" and had for months been back at his work as an "outside" carpenter.

As a matter of fact, he showed a gap in the abdominal wall at the site of the wound — broad and flat — hardly to be called a hernia as yet, but promising to be one. He was cautioned to wear a supporting belt, but seemed so content with his condition that I feel sure he has not complied with the instructions given.

The chest showed nothing abnormal; the lung was fully expanded, and, so far as one may test, the diaphragm was functioning as well as ever.

MULTIPLE CRAMPS OF PSYCHOGENIC TYPE IN A TELEGRAPHER.

BY TOM A. WILLIAMS, M.D., C.M., EDIN., WASHINGTON, D. C.,

Foreign Corresponding Member, Paris Neurological and Psychological Societies, etc.; Neurologist to Epiphany Dispensary.

F. W., aged thirty, a telegraph operator, complained of cramping of the wrist and hand while using the Morse sender, typewriter or the pen. Cramp sometimes occurs upon lifting a cup to drink, but *only if he thinks of it.* It occurs also upon brushing his teeth; but only those on the right side. It does not occur upon lifting up articles, unless he uses the fingers alone, when cramp *may* occur; but he can wind his watch, button his coat and collar and perform other ordinary acts without cramping.

The cramps. — The movements consist of a flexing of the wrist when using the Morse key; an extension of the ulnar fingers when using the typewriter; a rigidity of the wrist when brushing his teeth; a giving way and radial rotation of the wrist on lifting a cup to his mouth; a rigidity of the whole arm when attempting to write.

He is completely incapacitated from his usual work, but is able to address envelopes in pencil in the rigid fashion mentioned.

The history. — The personal and family history were unimportant except that he had a nervous sister and was disappointed that he could not follow his father's profession of medicine and had to work from boyhood. He neither drank nor smoked. Although ambitious, he does not think that telegraphing was his forte, for though he had tried hard enough, others with less education did better. He had not realized this, however, until he was too old to easily find something else which paid as well. Perhaps he had found learning harder than most people, because he tried to learn at night while working as a clerk in the daytime.

Even although ten years ago, after falling from a bicycle, dislocating his shoulder, he had worked in pain for five weeks before reduction was made, no disability had followed (not, however, at the key, but writing). He had not learned the Morse key in the usual way of the lads who pick it up as office boys and evolve into operators; for he began intentionally to learn when he entered an office at fourteen, and after four years could send forty to forty-five words per minute steadily with few mistakes.

Origin of the cramp. — The cramp occurred suddenly six years ago with "a kind of loss of use of the wrist, which would go up in the air while he was using the keys." At the same time the hand would flex. At the period when this occurred, he had been sending in the daytime for a stock broker from 9.30 A.M. to 4 P.M.; whereas formerly he had never used the key for more than three or four hours, and that in the evenings. The stockbroker's work had to be done quickly; and he felt it a strain; but he liked it in spite of its arduousness; for it did not seem to interfere with his health, although he had to eat lunch in the few minutes he could snatch at his desk. His only worry before the cramp occurred was the fear of not being able to do his work and of losing his position. Just before his disability began, he had found that he was not making his letters correctly, and could not go fast enough for the work. He had to give up his position in about ten weeks after the occurrence of the cramp.

Physical examination was otherwise negative except for an exaggeration of the deep reflexes.

Interpretation of this case. — Incomplete as is this analysis, it suffices to show, when we have in mind the preceding cases,[1] that this man's disability arose not altogether in consequence of fatigue, but largely because of his anxiety that he might not "make good" in the difficult position he held. Had he remained indifferent to the occasional errors he made and continued to work to the best of his ability, but without stressful apprehension, we have a right to conclude that no cramp would have occurred.[2] Indeed, had fatigue been the cause, cessation from work would have restored him; instead of which the disability later extended to typewriting, handwriting and even to some acts of daily life not of occupational character at all. That these latter only occurred occasionally is because only occasionally is any difficulty apprehended in performing them, whereas of the professional acts, there is an ever-present consciousness of incapacity which itself creates the incapacity through the vicious attitudes and movements borne of a morbid fear and bred into a habit.

Treatment.[2] — The principles of this are described in the memoir cited and also in *Journal of Abnormal Psychology*, July 1912. As the patient's energies are engaged in making a livelihood, it has not yet been possible to find a means of instituting a treatment for which so much application and effort are required.

A LIVING CENTENARIAN. — Mrs. Frank Rowell, of Brookline, Mass., the supposed centennial anniversary of whose birth we chronicled in the issue of the JOURNAL for Aug. 10, 1911, has happily survived the vicissitudes of another year, and on last Sunday, Aug. 5, celebrated her one hundred and first anniversary. She continues in excellent health. She reads much and walks out of doors daily.

[1] Studies of Occupational Cramp-Neurosis. Jour. für Psychol. und Neurol., Leipsig, 1912.

[2] See, also, cases in New York Medical Journal, Oct. 7, 1911, and in American Medicine, 1912 (to appear), which were readily cured of Scrivener's Palsy.

Medical Progress.

REPORT OF PROGRESS IN ORTHOPEDIC SURGERY.

BY ROBERT B. OSGOOD, M.D., ROBERT SOUTTER, M.D., HERMANN BUCHOLS, M.D., MURRAY S. DANFORTH, M.D.

[A partial bibliography alphabetically arranged by authors will be found at the end of this article.]

TUBERCULOSIS.

Tubby, after a wide personal experience and a careful review of the literature, concludes that during the last decade the conservative treatment of tuberculous joint disease in children has given better results than the operative. In agreement with this opinion are the investigations of the end results of operative procedures for ankle-joint disease made by Sever in children, and Rogers in adults.

Treatment of abscess. — The consensus of opinion seems to be to avoid open incision wherever possible. When aspiration is performed, various substances have been used to disinfect the cavity and to inhibit its refilling. The commonest of these has been, perhaps, iodoform glycerine. In this country no benefit has attended the use of these substances as far as our experience goes.

In order to replace a shoulder-joint excised for tuberculosis, Küttner reports the transplantation of a shoulder-joint taken from a cadaver six hours after death. The bones were placed in Ringer's solution for sixteen hours at freezing temperature. There was said to be first intention and a good functional result.

Lexer, in December, 1911, reported that his first successful case of joint transplantation had still a good functional result after three and one-half years.

Treatment of caries of the spine (Pott's disease) by means of operation, the purpose of which is to ankylose the diseased vertebræ. — Lange, in 1910, reported successful results from the use of tin plated wire rods, bulbous at both ends, placed on either side of the spinous process of the diseased vertebræ and extending some distance above and below. They were fastened in place by ligatures of silk passed about or through the bone and around the rods.

Hibbs, of New York, has devised an operation, the purpose of which is to stiffen the spine at the seat of disease by the formation of a continuous bony bridge. He strips the periosteum from the spinous processes and then produces a green stick fracture at their bases, turning each process down until it comes in contact with the fracture point of the one below, and then folds over the periosteum and sutures it in place. The prominence of the kyphos is lessened and his end results seen by the writers over a year after the operation are brilliant, with firm union on clinical and x-ray examination.

A third and simple method is that devised by Albee. He aims to stiffen the diseased area by means of the implantation of a bone graft. The spinous processes are exposed and split longitudinally. A small piece of bone is now removed from the crest of the tibia, thinly wedge shaped, with periosteum on the base and on one side. This periosteum is incised in several places and then the wedge is inserted in the cleft made in the spinous processes. The fascia is sewed tight over this graft to hold it in place. His experiments on dogs have shown that either the graft itself lives or is replaced by new bone, in either case the purpose being accomplished.

In this connection the experiments of Vedova are interesting. He presents a fully illustrated article (radiographs and colored plates) of parts of transplanted bones and joints. The transplantations were always done on the same animal. No histologic healing was evident, but the graft grew into place and the less differentiated elements proliferated. Satisfactory functional results were obtained.

It is too early yet to determine whether these or similar operative measures are to displace in any large number of cases the older and, on the whole, fairly satisfactory methods of treating caries of the spine, but if brace or jacket treatment can be safely omitted or the period of necessary recumbency shortened, a great advance in the treatment of Pott's disease will have been made.

CHRONIC NON-TUBERCULAR JOINT DISEASES.

An indication of the attention being paid to these conditions and the more acute rheumatic conditions is furnished by the issue of the London *Practitioner* of January, 1912. This number is largely given over to a discussion of these diseases. The tendency both in England (Luff) and in America (Ely) is to regard most of them as infections. Goadby has called special attention to the relation between these diseases and diseases of the mouth. He finally isolated a streptobacillus from the secretions of the mouth and with it was able to produce by injections into rabbits a synovial swelling, and in a few instances actual bony changes.

POLIOMYELITIS.

O. Thomsen has confirmed the experiments of Levaditi and Pastia, and those of Flexner and Clark, and succeeded in transmitting poliomyelitis to a monkey from the tonsils of a fatal human case of poliomyelitis. He has, moreover, been able to reproduce the disease in monkeys from the scrapings of the nose and throat of human cases of poliomyelitis. He was unable to reproduce the disease by applying an unmixed virus of poliomyelitis to freshly made skin scratches in monkeys, but succeeded in transmitting the disease in this manner when the virus of poliomyelitis was mixed with variola vaccine. From the vaccine pustule of the first monkey he was able to transmit the disease through three generations, and concludes that the poliomyelitis virus is quickly augmented if mixed with vaccine.

Lucas and Osgood have apparently transmitted the disease to monkeys from the nasopharyngeal tissue of human cases from a few days to six months after the acute attack. Their clinical findings are typical; their pathological findings

not absolutely conclusive. In experiments carried out by them for the State Board of Health, it was shown that an immunity to various other diseases artificially produced probably in no way offers a protection from infection by poliomyelitis.

In Kilvington's first article on the Regeneration of Nerves with regard to the surgical treatment of certain paralyses, a hope was expressed that these researches would lead to a solution of some of the problems of poliomyelitis. Thus far the hope has not been in any large way realized either by him in his later articles (1905, 1907 and 1912) or by others. There seems to be a tendency to abandon the method, since the results of the most careful and accurate procedures have been so meager.

SCOLIOSIS.

E. G. Abbott, of Portland, by a special method of applying plaster jackets, reports that he is able to over-correct in a few weeks or months very severe cases of structural scoliosis with marked rotation. His illustrations and x-rays are convincing, and by his method other men have been able to attain results which seem to be more constant, more rapid and more complete than by any other previously attempted. He applies the jackets in dorsal recumbency on a specially devised frame, the essential of position being forward flexion and rotation of the trunk. He believes that in flexion the articulations are most unlocked. If the permanent results prove to be at all comparable to the reported immediate results, the value of Dr. Abbott's contribution can hardly be overestimated. He has, in any event, apparently succeeded in at least temporarily untwisting rigid spines and correcting lateral deviations which have heretofore proved most resistant, and has accomplished the correction in a shorter time than had been before thought possible.

Dr. A. Mackenzie Forbes, of Montreal, has for several years been working independently by methods similar to those of Abbott and has also obtained some unusually complete corrections.

CONGENITAL DISLOCATION OF THE HIP.

Dr. Bradford, whose experience is perhaps larger than that of any one else in this country, believes that in the majority of cases manual manipulation is sufficient to reduce congenital dislocation of the hip. In the resistant cases he believes that mechanical aids often make it possible to accomplish a more complete reduction, and therefore the danger of relapse is lessened. He divides congenital hips roughly into two classes, (1) with open acetabulum; (2) partially covered acetabulum. When this covering is resistant it requires force to push through the head. The mechanical appliance aids in doing this by the accurate application of force and holds the pelvis fixed. Dr. Bradford believes that in unilateral cases in children between the ages of three and six the results in ordinary hospital practice should be from ninety to ninety-five per cent of permanent anatomic cures.

FOOT STRAIN.

Lowman has called attention to the important part which the thigh rotators play in the production and relief of foot strain and flat foot. He points out that they act on the long arm of the lever. When weight is borne the contraction of the outward rotators of the thigh raises the inner side of the foot and tends to relieve foot strain.

Meng in a careful study and after a review of the literature concludes that the lower leg muscles play a comparatively unimportant part in static foot conditions with the exception of the flexor longus hallucis. The importance of this muscle has been already emphasized by Huebscher.

Other observers agree as to the importance of the flexor longus hallucis but consider the other muscle groups, the adductors and abductors and the intrinsic foot muscles, as exerting very real influence on the pathogenesis, the prophylaxis and the therapy of so-called flat foot.

RICKETS AND OSTEOMALACIA.

There seems to be a tendency among clinical observers at least, to regard the phenomena of rickets and osteomalacia as due to essentially similar metabolic disturbances.

Ogata describes an interesting epidemic in Japan, suggesting a severe infantile osteomalacia and rickets. He regards the disease as a general trophic disturbance and believes that the exaggerated blood supply which for some reason the bones receive upsets the balance betwen the deposit and the absorption of calcium. This he thinks explains the recurrence of the disease at puberty and its restriction to the female sex after puberty. In osteomalacia of female adult life he has not been able to determine whether the changes in the ovaries are primary or secondary.

McCrudden believes that the etiology of osteomalacia is to be explained by an original demand in some part of the system for more calcium, which the bones, being the great reservoir of this mineral, supply. That this theft may go on even after the original demand has been met is analogous to the persistence of certain other well-known cell activities after the original stimulus has been removed.

JOINT SURGERY.

An important contribution has been made by Brackett to the surgery of the hip-joint. After a careful series of dissections and a large series of operations he has described the various approaches to the joint and the parts of the articulation which they best expose. He also calls attention to the dangers of the subcutaneous sub-trochanteric osteotomy of Gant for the correction of malpositions of the hip, and has devised a trans-trochanteric curved osteotomy performed through an open incision which obviates the dangers of slipping and splintering. The article is profusely illustrated.

Rehn and Wakabagaski have performed homoplastic transplantation of the epiphyseal cartilages in animals. After five weeks they begin to

notice arrest of bone growth. The cartilage is still present, though thinner, after eight weeks, but after fifteen weeks only small fragments of the cartilage remain. They think that the cells retain their vital power until they are adapted to the new conditions.

Rehn from material obtained from these same experiments had studied the regeneration of the bone marrow. In one week degenerative changes, more marked in the diaphysis than in the epiphysis, begin, and in two weeks there is seen a fibrous transformation of the diaphysis, complete in four weeks, while at this time the myeloid marrow of the epiphysis still persists, with small areas of fibrous transformation. At the end of five weeks perivascular regenerative changes begin and go on more quickly in the diaphysis than in the epiphysis, the myeloid marrow replacing the fibrous transformation in about fifteen weeks.

Soutter has transplanted cartilage in the knee-joint of twenty-four animals, dogs and rabbits. Macroscopically, the cartilage transplanted was satisfactorily smooth for function in the cases where cartilage alone was transplanted.

Where bone and cartilage was transplanted, there was a depression. Microscopically, the transplanted cartilage resembled a dense fibrous tissue without cartilage cells.

Arthroplasty. — Schmerz reports a case of complete fibrous ankylosis of the knee-joint with almost complete destruction of the cartilage, in which after having detached the tibial tubercle and exposed the joint he smoothed off the bony surfaces, excising most of the capsule, and covered the ends with amnion membrane. After ten weeks he reports active extension to 175° and active flexion to 63°. He believes this to be the best result reported in literature. Murphy and Baer in this country have reported cases of equal or greater range of motion. No mention is made in Schmerz's report as to the amount of lateral mobility after the arthroplasty. In the knee-joint, which is perhaps the most difficult joint to mobilize, the amount of motion in flexion and extension is often in direct ratio to the amount of lateral mobility, while the amount of lateral mobility is usually in inverse ratio to useful function and stability.

In this connection the report of a case of traumatic suppurative arthritis of the knee by Albertin is interesting. He resected much of the synovial sac, but obtained resulting motion to beyond a right angle in flexion and complete extension. The patient was an athlete and continues to enter running races. This is in line with the experimental results of Payr, who found that after almost complete synovectomy in animals there occurred the formation of a membrane which took up the function of the excised synovia almost perfectly.

TRANSPLANTATION OF FREE FLAPS OF FASCIA.

Kirschner and Lexer in Germany, and Lewis and C. B. Davis and John S. Davis in this country, have reported remarkable results from the implantation of free flaps of fascia. In the animal experiments a piece of free fascia was kept in sterile normal salt solution at freezing temperature for fifty-six days and was then successfully transplanted (J. S. Davis). Its examination after showed it to be still viable. Kirschner has used fresh fascia in over fifty cases, and found that it always healed without reaction even in infected cases. Its principal orthopedic uses are to repair tendons, to suture bones, for substituting or strengthening ligaments, for arthroplastic operations, etc. According to the experimenters, much better results are obtained if function is begun early. This is especially true of tendon transplants which undergo degeneration and infiltration with scar-like tissue under complete rest, but marked regeneration takes place when early function is induced.

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AMERICAN THERAPEUTIC SOCIETY.

THIRTEENTH ANNUAL MEETING, HELD UNDER THE AUSPICES OF McGILL UNIVERSITY, AT MONTREAL, CANADA, MAY 31 AND JUNE 1, 1912.

ADDRESS OF THE PRESIDENT.

THIS was delivered by DR. A. D. BLACKADER, of Montreal, president of the society, who, after a historical sketch of Montreal and the founding of McGill University, went on to say that he had asked himself whether to-day therapeutics took the place it surely ought to hold in medical teaching and in advanced medical thought. To many it appeared to fail in doing so. Amongst the hundreds of drugs in the pharmacopeias and dispensatories, those which cured (our specific remedies) might be counted on the fingers, — some would even say on the fingers of one hand. All the others assisted us only in the relief of symptoms. Yet we had nature to work with us, and as to this *vis medicatrix naturæ*, what a wonderful revelation of her powers in combating disease had been made by Metchnikoff, Ehrlich, Morgenroth, Wassermann, Wright and many others. His belief was that in strengthening the immunizing mechanism of nature lay the therapy of the future. In this connection we might recall that no advance in therapeutics had been of greater value to the world than the modern appreciation of the benefits of fresh air, undoubtedly one of the most powerful stimulants to the activities of the phagocytes and the development of the various forms of antibodies. As to our pharmacopeial drugs, he had a strong belief in the limited value of the majority of these when used with a definite knowledge of their action. Only when we knew the exact action of a drug, both in health and under pathological conditions, were we able to employ it in a useful, purposeful way and to avoid undesired and often toxic side-effects. The outlook in therapeutics had been dark because hitherto therapeutics had been taught as a mere empiricism. The future was bright because in all our best medical schools to-day the students were taught practically, as well as theoretically, the action of each drug; and it was his belief that if the many internists who were therapeutic pessimists had had the advantage of a practical training in a modern pharmacological laboratory during their student days, they would now be more optimistic, as well as clearer, in their therapeutics.

PRIZE OF $500 OFFERED.

The Committee on Competitive Therapeutic Research reported that no report on a subject of therapeutic research had been received in response to the offer of a

$200 prize by the society, and recommended that the competition should be thrown open to the profession at large and that the amount of the prize offered should be increased to $300, or more. On recommendation of the Council, it was afterwards voted that the prize should be $500 and the competition open to the medical profession of the United States and Canada.

SOME COMMON TYPES OF HYPOSECRETION OF THE THYROID.

By Dr. O. T. Osborne, New Haven, Conn: A very large variety of conditions, he said, were due to subnormal thyroid secretion. Frequently the real origin of the trouble present was not suspected, and an erroneous diagnosis was made. The patient was apt to go from one physician to another, and would not be permanently relieved until the true nature of the difficulty was recognized and appropriate treatment instituted. The thyroid was peculiarly susceptible to mental influences, so that its secretion was stimulated or diminished according to the nature of the mental impression; and some cases of disturbed thyroid secretion closely resembled pure hysteria. When the gland was subsecreting, the condition of the blood resulting was sometimes not dissimilar to that met with in hemophilia. When we remembered the very important part the thyroid played in the life of the female, it was not to be wondered at that it was apt to become overworked and that eventually it should hypo-functionate. Among the conditions for which he believed thyroid subsecretion responsible were cretinism, some forms of eczema, some forms of asthma, infantile obesity, adiposis dolorosa, lipomatosis, some digestive disturbances, some forms of melancholia, chlorosis, amenorrhea, myxedema, senility, and perhaps Raynaud's disease. The stimulants to thyroid secretion were great sorrow, great joy, nervous tension, sexual excitement, genital disturbances (especially uterine), pregnancy, cerebral stimulants such as coffee, tea and alcohol, and such drugs as arsenic, iodides, phosphorus, salicylic acid, pilocarpine and, of course, thyroid extract. He cited a number of illustrative cases in which the administration of thyroid was effective in varying conditions, and in conclusion advised caution in the use of this agent. In appropriate cases only small doses were required, and in unsuitable ones even these might do much harm.

THE DIFFERENTIATION OF CARDIAC ARRHYTHMIAS AND THEIR TREATMENT: WITH A NEW TIME MARKER.

By Dr. T. E. Satterthwaite, New York: Four distinct varieties of arrhythmias were now recognized as capable of demonstration by graphic methods, so wonderfully developed in the last ten years, and these corresponded to the first four of the five physiological attributes of heart muscle pointed out by Gaskell. The first form of arrhythmia, known as the pneumogastric, was a variation from the standard cycle within physiological limits. In the second, the extra-systolic, there were extra or supernumerary contractions from stimuli not originating in the sinus venosus, like the pneumogastric arrythmia though in the main the regular, or sinus, rhythm was maintained. There were two principal types, but all extra-systoles were followed by a pulse period rather larger than the normal. The really most important function of heart muscle was contractility, and a striking example of its abnormal characteristics was seen in the alternating pulse, in which the laternation of large and small beats was continuous, thus distinguishing this form of arrhythmia from extra-systolic arrhythmias. Another variety of abnormal contractility was seen in auricular fibrillation, where the cardiac cycles varied so much that there was no sequence of beats having the same length. This was responsible for most of the disturbances of the ventricular system. Indeed, in the vast majority of instances a sphygmogram showing that no two successive beats were of the same length meant a diagnosis of auricular fibrillation. In affections of conductivity the normal stimulus, which started in the sinus and passed over the bridge of His to the ventricle, might be delayed in its course, might not cross at all, or might be arrested beyond the bridge; any one of which conditions might cause heart block. The *pulsus infrequens*, improperly called the slow pulse, almost always indicated a loss of conductivity. Disturbed rhythmicity, the first of the types of irregularity, did not as a rule warrant us in sounding a note of alarm, as it was really physiological. In extra-systole there might be a neurotic base, or it might result from the pressure of gas from gastro-intestinal fermentation; or, again, it might be a reflex from the alimentary canal, as in indicanuria. In the one case sedatives, such as camphor and bromides, were useful; in the latter, remedies regulating gastric or intestinal digestion. If the extra-systoles were due to over-use of coffee, tea or tobacco, the indications were evident. In auricular fibrillation no remedy was so satisfactory as digitalis, or its congeners, the best of which was strophanthus. Acute heart block might, however, be due to digitalis, in which case the drug should of course at once be discontinued. If syphilis were present, specific treatment should be pushed. Atropine, $\frac{1}{100}$ gr., was available as a test to determine whether the heart block were caused by a lesion of the pneumogastric. On account of the expensiveness of the Jacquet instrument, Dr. Satterthwaite had devised an American time marker, which could be made at home at comparatively small cost, and this he described.

Symposium on the Etiology and Treatment of High Blood Pressure.

THE RELATION BETWEEN HIGH BLOOD PRESSURE AND THE ADRENALS.

By Dr. C. E. DeM. Sajous, Philadelphia: The adrenal secretion, it was now well established, exerted a direct action on the muscle fibers of the heart and the arteries, and the brunt of this contractile action was borne by the arterioles. As his remarks must be limited, he would devote his attention to but one of the morbid effects which such action on the arterioles might entail, namely, arteriosclerosis. Having stated that many investigators had observed that vascular lesions at least resembling those of arteriosclerosis were caused by injections of adrenalin, he said that all the main causes to which arterio-sclerosis was usually attributed could be summarized by the one word "intoxication," as had long ago been emphasized by Rokitansky and Traube. As to the relationship between this general toxemia and the adrenals, it was a fact that all but one (alcoholism, which had not been studied in this connection) of the morbid conditions known to provoke arteriosclerosis had also been observed to cause over-activity of the adrenals. Moreover, Coplin, in an examination of the adrenals of 22 cases of arteriosclerosis, found that 17 were markedly altered, the exceptions being the seat of a tubercular process in three instances and of a secondary neoplasm in one. Again, potassium iodide, our best remedy in arteriosclerosis, had been found to inhibit the secretory activity of the adrenals. We were thus brought to attribute to adrenal activity the production of clinical arteriosclerosis, a process similar to that caused by the injection of adrenalin experimentally. That the contractile action of the adrenals on the vascular system was borne directly by the terminal

arteries appeared to Dr. Sajous to furnish the key to the situation. The pathogenic agent, whatever it might be, caused more or less violent over-action of the adrenals (probably by exciting their center) and thus increased their secretory activity sufficiently to reduce more or less the caliber of the arterioles from which the *vasa vasorum* received their supply. Deficiently nourished through these, their nutrient vessels, the medial and intimal vascular tissues degenerated, forming the familiar sclerotic patches.

THE NATURE OF THE CARDIOVASCULAR CHANGES IN NEPHRITIS.

By Dr. A. C. Crofton, Chicago: While many cases of nephritis ran their whole course without the appearance of any cardiovascular manifestation whatever, on the other hand, cases sometimes occurred in which increased blood tension appeared within forty-eight hours after the onset of renal difficulty and rapidly led to organic cardiac and arterial lesions which proceeded throughout the course of the disease. He spoke first of the forms of cardiovascular degeneration occurring consecutively to nephritis, and then went on to say that in the numerous cardiovascular disorders in which blood-pressure changes either precede or accompany nephritis three possibilities could be logically distinguished: (1) The cardiovascular changes preceded and caused the nephritis, and this, he believed, was the sequence of events in true Bright's disease. (2) The cardiovascular changes developed simultaneously with the nephritis. Here some agency must be operative which affected both the cardiovascular apparatus and the kidneys, and to this category belonged chiefly the cardiorenal disorders seen in chronic lead-poisoning and, above all, in the gouty diathesis. (3) The cardiovascular changes were manifestly of renal origin, consecutive to the nephritis and in all probability due to renal inadequacy, with retention of urinary end-products. It would consequently be seen how important it was, from the standpoint of prognosis and treatment, to attempt in each case of nephritis complicated by cardiovascular disorders an interpretation of the sequence of events.

HIGH BLOOD PRESSURE ARISING FROM NERVOUS STRAIN IN DISEASES OF THE NERVOUS SYSTEM.

By Dr. E. D. Fisher, New York: The affections to which he would invite special attention were diseases of the nervous system due to arterial disease, arteritis either of the atheromatous type or that consequent upon syphilis, to cerebral compression as caused by new growths, increase of cerebrospinal fluid, etc., and to vascular changes due to direct poisons, such as uremia, alcohol, etc. In the first group, endarteritis of a degenerative type, a rather general distribution of arterial disease was found; so that not only was the nervous system involved, with the display of cerebral and spinal symptoms, but interstitial nephritis and cardiac hypertrophy were also present. In cases under forty we had symptoms peculiar to disorders of the special organs, but no, or only slight, tendency to cerebral hemorrhage or epilepsy, as in older persons. In them the blood pressure might be temporarily high, but was not continuously so and was more easily controlled; while in cases over forty there was a constant high blood pressure, subject also to marked increase, which was the danger point, indicating the probability of a seizure, apoplectic or epileptic. The arterial condition here marked out positively the difference between such epileptic seizures and so-called idiopathic epilepsy, and also that due to a focal lesion. High blood pressure, when occurring during pregnancy, should be regarded as a danger signal. If in syphilitic endarteritis the blood pressure, contrary to the usual rule, were high, this was to be accounted for, not by the arterial disease, but by complications, which probably explained the clinical condition, due, as a rule, not to cerebral hemorrhage, but to cerebral thrombosis. In cerebral growths compression of the brain might manifest itself by high blood pressure, more or less continuous. Here again we found that there were variations dependent upon exciting conditions such as disease of the heart or kidneys, drugs, etc. Convulsions, if occurring, might be due to anemia from pressure. High blood pressure, cerebral tumors, hydrocephalus, or compression following trauma might be observed to fall as soon as the skull was opened, or, more surely, on opening the dura, with the escape of cerebrospinal fluid. This was not always the case, however, in decompression operations for traumatism, many such cases continuing to show high blood pressure and failing to recover consciousness. During cerebral operations, taking the blood pressure as a routine matter was valuable, as rapid fall indicated the need of stimulation or of cessation from further operating at the time. He then emphasized the importance of observing the blood pressure in all cases of vascular disease, stating that its sudden or steady rise indicated the line of treatment which might avert a catastrophy. At least, it might inform us of the danger of our patient.

HIGH BLOOD PRESSURE IN THE TOXEMIAS OF PREGNANCY.

By Dr. D. J. Evans, Montreal: In a series of 38 cases of pregnancy observed by him which were complicated by eclampsia, very marked albuminuria, or vomiting of a toxic type, eclamptic convulsions occurred in 8, and among these the highest blood pressure noted was 200 mm., and the lowest, 140 mm. In most instances the blood pressure immediately before the convulsions was between 170 and 190 mm. In one of the patients who had three convulsions the blood pressure never rose above 150 except just at the time of a convulsion. Two had a blood pressure of 200, one with five and the other with eighteen convulsions. There were 4 cases of severe vomiting: 2 early in pregnancy and 2 near term. In the latter the blood pressure was 140 in one and 125 in the other. In the former, one, whose blood pressure was never above 125, recovered from her vomiting and went to term, while the other, a most severe case, was aborted at the sixteenth week and died ten days later. In this patient the blood pressure was usually about 100, and never rose above 110, yet she developed retinal hemorrhages and other signs of marked toxemia. He was, therefore, inclined to conclude that in cases of vomiting in pregnancy the blood pressure record was of little value as indicating the degree of toxemia present. The other 26 cases were albuminurics, with toxic symptoms of more or less gravity. Seven of these had a blood pressure of 160 or over, — 2 as high as 180, — and in 12 it was 140 or under, the lowest record being 120. He had been surprised at the comparatively low reading obtained in many cases where the symptoms indicated a very considerable degree of toxemia. It seemed to him that 160 was the danger limit, and that in cases where, in spite of treatment, the toxic symptoms do not yield and the blood pressure is maintained as high as this point, or higher, labor should be induced. In all cases with hepatic or renal insufficiency, the blood pressure should be carefully watched. A rising blood pressure here, associated with other toxic symptoms, was indicative of danger. In cases of pregnancy with high blood pressure without toxic symptoms there appeared to be little occasion for anxiety.

FACTORS WHICH ALTER BLOOD PRESSURE IN PULMONARY TUBERCULOSIS.

By Dr. F. M. Pottinger, Los Angeles, Cal.: In a former paper he had reached the following conclusions: (1) A relatively low blood pressure is found in tuberculosis, especially in advanced cases. (2) The factors favoring low pressure are the effect of the toxins upon the vasodilators, the weakness of the heart muscle and the general wasting. (3) The factors which have a tendency to maintain pressure are hypertrophy of the heart muscle and thickening of the systemic arteries. (4) Thickening of the arteries occurs perhaps as a result of the action of the toxins on the vessel wall, and is, therefore, found especially in those who have had tuberculosis for some time. Further experience had confirmed his former observations and also enabled him to add one more factor which he believed was of great importance in causing low pressure, namely, the altered function of the diaphragm and its accompanying splanchnic congestion and relative arterial anemia. His own theory as to this altered function, resulting from displacement and diminished action, was that it is a part of the general scheme of protection by lessened motion, such as has long been recognized in abdominal lesions, and that its cause is the same as that which produces the spasm of the muscles of the neck and chest under the same conditions, — a reflex stimulation, — the impulse passing from the inflamed lung to the cord and there stimulating the adjacent cells of the segment and sending out stimuli to the diaphragm, through the motor fibers which take their origin from contiguous cells, causing them to assume a condition of tonic contraction or spasm.

THE GENERAL TREATMENT OF HIGH BLOOD PRESSURE.

By Dr. S. L. Dawes, Albany, N. Y.: The general treatment might be divided into (1) prophylactic, (2) curative and (3) symptomatic. (1) A regulation of the habit of the patient as to diet, exercise and excretion was indicated. Rational and systematic exercise would do more to prevent sclerosis of the arteries and its accompanying hypertension than even regulation of the diet, and, in addition to practicing this, most active business men should have a sea voyage or a period of complete relaxation in the country at least once a year. (2) Here we should pay our attention first to the underlying cause of the trouble, for it had to be admitted that high blood pressure was a symptom rather than disease. Iodine, usually given in the form of potass. iodide, was by far the most popular medicinal agent used with the idea of cure, but its value rested more on empirical evidence than upon accurate measurement of the blood pressure. (3) Unfortunately, most of our efforts had to be directed towards relief, as the majority of patients did not come to us until a distinct arteriosclerosis was established, when a cure was often impossible. Venesection might be of great service in suitable cases, and the free use of calomel or the mass of mercury followed by a brisk purge sometimes gave highly satisfactory results. Lactic acid tablets might be employed with advantage when there was intestinal torpor with decomposition of the animal food, and in certain types of cases the promotion of free diuresis was of great help. Here digitalis, notwithstanding that primarily it increased arterial tension, was of great value, and theobromine sodio-salicylate was also useful. In speaking of the nitrites, he said that care should be taken not to lower the blood pressure to a point where the secreting function of the kidneys was unfavorably affected, and it was also well to remember that not all cases where there was high blood pressure demanded, or even admitted of, a reduction of the tension; for as long as the cardiac powers compensated for obstruction in the circulation, no special treatment was called for.

TREATMENT BY MIND CONTROL AND MECHANICAL AGENCIES MAKING FOR VASOMOTOR CONTROL.

By Dr. J. M. Taylor, Philadelphia: Since there was still so much doubt as to the gravity of the symptom hypertension, — indecision as to how far it was an evidence of organic conservation, — it was the part of wisdom to employ in overcoming it only those vaso-relaxing agents whose action was known to be likely to do the least harm. Hence, there might be recommended training in mind control and simple, trustworthy mechanical and thermal agencies capable of opening or closing the blood-paths. A large number of individuals exhibited psychic hypertension as a common feature of other derangements, including more or less vascular hypertension, and with such, persistence in training in mind control produced permanent vascular relaxation and relief of distressing sensory symptoms. In the way of mechanical measures having the effect of inducing vascular relaxation, the following had been found satisfactory: (1) Manual therapy, using the fingers to press gently and continuously on the paravertebral tissues; useful in both acute febrile and protracted states. (2) Skin friction of the whole surface, dry or with water, for periods of not less than twenty to thirty minutes, preferably twice daily; especially for protracted vascular excitation. (3) Gentle, systematic and increasing passive, active and resistant movements, watching the heart; also steady walking, slow "trudging" on level or gently sloping ground (e.g., "terrain kures" of Carlsbad, Aix, etc.). (4) Baths, especially the "neutral immersion bath," water at 92° to 98°, preferably containing sodium and calcium chlorides, in which the patient lies for half an hour to two hours once or twice a day.

TREATMENT BY THE HIGH-FREQUENCY CURRENT.

By Dr. Howard VanRensselaer, Albany, N. Y.: Just what were the most advantageous frequency and voltage for the effect on the human system had not as yet been scientifically demonstrated, but in medicine it was customary to employ a current in which the cycles ran from 200,000 to 2,000,000 per second, and with the high voltage of 10,000 to 500,000. If the blood pressure of a person with hypertension were taken before the electrical treatment, and again directly after this, it would be found to have fallen, and, in general, the higher the tension, the greater the fall, provided that arteriosclerosis were not present. The first few treatments might not keep the blood pressure down for as long as twenty-four hours, but each succeeding day, if the electricity were given daily, the tension stayed lowered for a longer time. Usually it remained down longer than twenty-four hours within a fortnight, and after that the intervals between the treatments might be gradually extended to once a week, or even once a fortnight. The action of the electricity appeared to be to modify and improve the underlying processes causing the high blood pressure. He related a case illustrating the good effects of the high-frequency current on a person in the earliest stage of Bright's disease, before renal symptoms had been demonstrated, and expressed the opinion that had this patient not taken the electrical treatment, the action of intestinal toxins would in a few months, or a few years at most, have produced a condition of hopeless chronic Bright's. From his study of this subject he offered the following premises and deductions: *Premises*: (1) The underlying cause of most

cases of high blood pressure is metabolic, from faulty digestion of food. (2) The hypertension usually precedes renal, cardiac and arterial changes. *Deductions:* That by proper treatment with high-frequency currents (1) the general condition is improved, and especially the metabolic processes, so that less toxins are formed and absorbed; (2) when, by the aid of the sphygmomanometer, hypertension is recognized early, we are able to cure the initial stages of the disease, because we remove the exciting cause; (3) that we can prevent the actual development of Bright's disease; (4) when renal or cardiac lesions are already present that we can check the rapid advancement of the pathological processes and thus prolong life; (5) in the later stages of the disease, when compensation has broken and the heart begun to fail, that by lowering the tension we lessen the resistance which the enfeebled heart is obliged to overcome, and so can alleviate some of the symptoms and make the patient more comfortable; (6) that by its effect in lowering arterial tension we protect the brittle blood vessels from the liability to rupture, and thus can minimize the danger of apoplexy.

SODIUM NITRITE IN ARTERIAL HYPERTENSION.

By DR. WILLIAM H. PORTER, New York: In his opinion, no remedial agent was specially curative. All such agents acted by assisting nature to accomplish that which she could not do by the simple use of natural foods. While some remedies acted directly, others did so indirectly, and sodium nitrate was of the latter class, since it in no sense tended to remove directly the causes of hypertension in the vascular system. We knew exactly what could be accomplished by means of it, but the precise manner in which it produced a dilatation of the over-tense vessels was not so clear. It was probable, however, that, in the presence of water and HCl in the stomach, it became decomposed, and that its decomposition products, NO_2 and NO, were disengaged in the form of vapors which were irritants and strong oxidizers. These ultimately produced an impression upon the centripetal nerve-endings in gastric mucosa, which impulse was transmitted to the vasomotor center and by the centrifugal nerves conveyed from the center of the vascular wall, thereby causing the expansion of the vessels. The slow decomposition of sodium nitrite, as compared with amyl nitrite and nitroglycerine, rendered it far more valuable than either of these when a continuous effect was desired; and its continuous action had been demonstrated both experimentally and clinically. Undue vascular contraction was very much more damaging than over-expansion, and from a purely nutritive standpoint there was the greater necessity for modifying hypertension, for, without an ample and well-distributed nutritive supply, pathological conditions could not be removed or physiological ones re-established. Sodium nitrite was, therefore, extremely valuable when employed before the vascular system became too pathological to be easily influenced by its power to expand the unduly contracted arterioles. The dose should be from 1 gr. up, given at frequent intervals until the vessels softened. Under its action, when properly administered in suitable cases, the distressing symptom, dyspnea, nature's indication of tissue-starvation, was completely relieved, while oxidation reduction was greatly augmented, as evidenced by the changes for the better in the katabolic products found in the urine. Now, if at this time, by other measures, the etiological factors were removed and the diet and digestion rendered perfect, the metabolic processes of the body could be, and often were, changed from an absolutely pathological state to one which was entirely normal. It was the misuse of sodium nitrite, as, for instance, when the arterial system was contracted in connection with an enfeebled cardiac muscle, or when there was engorgement of the general venous system that had caused many to doubt its efficacy. When, however, employed when and where it could assist nature, there was no more prompt and reliable remedy in the whole materia medica.

DISCUSSION.

DR. OSBORNE said that in the presence of advancing age, when the thyroid grew less powerful and the suprarenals more active, iodine in some form was the only thing that was of service, and, therefore, he believed that the stimulation of the thyroid was the one thing that would do good. Of the iodides, he preferred sodium iodide, as less irritating than the potassium salt, and said he could not understand why the latter was so generally used in this country.

DR. SAJOUS said that the thyroid and adrenals were both known to secrete less freely in advanced life, but it often happened that the functional degeneration of the thyroid was more rapid. When this was the case the persistent rise of blood pressure sometimes seen in old age, or even just past middle life, was to be attributed to the adrenals.

DR. A. E. GALLANT, New York, said that in cases of hypertension great relief could sometimes be afforded, he had found, by keeping the patient in bed for ten days at a time, without food, and giving him a gallon of water a day.

DR. CROFTON said that in cases of intestinal intoxication very small doses of digitalis had the effect of reducing the blood pressure, acting like the nitrites. Personally, he had never observed any beneficial result from iodine, in the form of iodides or otherwise, and neither could he endorse the water treatment, being a firm believer in the restriction of liquids. It was also of much importance, he thought, that the nitrogenous food, especially meats, should be restricted.

Two papers in the symposium were read by title: "High Blood Pressure of Alimentary, Autotoxic and Metabolic Origin," by Dr. M. H. Fussell, Philadelphia; and "High Blood Pressure Due to the Action of Exogenous Poisons, such as Tobacco, Caffeine and Alcohol," by Dr. H. C. Wood, Jr., Philadelphia.

THE PROPER TREATMENT OF DIABETES MELLITUS.

By DR. L. KOLIPINSKI, Washington, D. C. The subject of diabetes, he said, was permanently bereft of the power of extracting sustenance from sugar and starch, and he must henceforth abandon the proverbial staff of life, bread, or death would be the consequence. If, however, a diet were used which contained little or no carbohydrate, but on which he could live and thrive, no evidence of the continued existence of the disease would appear. Dr. Kolipinski said his treatment was entirely dietetic, but the results were precise and invariable, when the dietary he prescribed was faithfully adhered to, and under it any diabetic free from terminal disease could be speedily and permanently cured. In this dietary were meats, fresh and salt, fish, fresh and salt, fowl, game, clear broth, cheese of all kinds, raw tomatoes, lettuce, onions, cucumbers, pickles, eggs, tea and coffee in moderation, curds, cream and artificial milk. The last-named article, which was given at every meal, was composed of 1 raw egg, two teaspoonfuls of malt extract and four teaspoonfuls of olive oil, which were beaten up together and to which was added, while stirring, one pint of water, with salt according to the taste. In three or four months various fruits and vegetables might be allowed if found not to produce glycosuria. The

only medicines used in the treatment were saline purgatives, given when the patient had constipation, hemorrhoids or the fat habit. The diet mentioned, he said, invariably brought the specific gravity of the urine to normal, or below, in the course of three or four days, and thenceforth not a trace of glucose could be detected. In essential diabetes of man glucose did not come from fat or proteid, whatever might be the case in experimental diabetes. It was of great importance to guard a cured patient from his former habit of over-eating and obesity, and it might be necessary to reduce the daily quantity of artificial milk. The sparing use of alcohol and tobacco need not be prohibited. In the cases treated by him the previous duration of the disease had been from one month to twelve years, while the ages of the patients range from young adult life to old age.

Dr. Crofton took issue with Dr. Kolipinski. From the literature on the subject, and from his own experience, he was convinced that a person once a diabetic was always a diabetic. In light cases it was easy to keep the sugar down, but in severe ones this was more difficult, as the patient continued to manufacture sugar even if the diet were restricted to meats and fats. Diabetes was really only a symptom, and underlying it there might be a great variety of conditions. Diabetics should be allowed a certain amount of carbohydrate (say, 100 to 200 gm. of white bread), and he believed it was decidedly bad practice to keep the patient on a strict diet. To maintain a strict diet for an indefinite time was not only bad practice, but decidedly dangerous even in mild cases, increasing the tendency to acidosis. In the severer ones it was still more dangerous, and therefore, we had to strike a balance. It was more important to keep the patient in good nutritional form than to have his urine free, or comparatively free, from sugar.

Drs. Sajous and Osborne agreed with the views expressed by Dr. Crofton, the former stating that each case of diabetes had to be studied individually, and that he had as yet to find five cases which he would treat in just the same way.

MODERN METHODS OF DRUG STANDARDIZATION.

By Dr. F. E. Stewart, Germantown, Pa.: He explained the methods of standardizing various kinds of medicinal substances, including antitoxins and bacterial vaccines, and, having described the plan for teaching standardization which he had adopted in his lectures at the Philadelphia College of Pharmacy, made a plea for the more general application of this method for securing accuracy.

The paper was, on motion, referred to the Committee on Therapeutic Research with the request that they confer with Dr. Stewart in regard to bringing it to the attention of the Committee of Revision of the United States Pharmacopeia and the American Pharmaceutical Association.

THE VALUE OF ENTEROSTOMY IN ILEUS.

By Dr. L. H. Taylor, Washington, D. C.: The object of the paper was to show the value of this operation in certain conditions in ileus, as demonstrated in a series of twenty cases in his practice in the last two years. The bowel was opened for the purpose of permitting the escape of gas and fluid content, and upon the gut's ability to empty itself would depend the success or failure of the procedure. In ileus, or at least those cases of it where the condition was grave enough to warrant enterostomy, peristalsis had either ceased or become so feeble as to be negligible, and we had to rely upon the contractions of the diaphragm and of the parietal abdominal muscles. If either of the latter forces was much weakened, we could not expect to get much result. Therefore, to allow tympanites to go on to a high degree was to invite disaster. The ideal time for enterostomy was before peristalsis had ceased, and operative interference should not be delayed when it had become apparent that it was going to cease, in spite of the ordinary remedies. The only reliable ways to determine this were by the frequent use of the stethoscope and careful observation of the character of the vomitus. The larger number of his cases had been operated upon for the cause of the condition, and in such a loop of bowel could be drawn out through the original incision after the sutures had been cut. Where the patient was nearly moribund, sensation was so much obtunded that no anesthetic was required; when this was not the case he had had given a light primary ether anesthesia. In reflex ileus where there had been no previous incision he had used local anesthesia. A patient needing enterostomy was in no condition to be moved. The operation should be done in the patient's room, and should, furthermore, be of the simplest and quickest character. It was his firm conviction that a slow, deliberate operation, with the usual operating-room paraphernalia, technic and courtesies, would kill every patient. Having described the technic of the procedure, he said it was extremely important to get the enterostomy low down in the ileum for two reasons: first, the further away it is from the pylorus, the larger the area of distended gut that will be drained; second, because the nearer the pylorus, the more acid will be the character of the discharge which later will be thrown out over the skin and the greater the interference with nutrition when food will be recommenced and the wound expected to heal. In appropriate cases, where the abdominal muscles were not stretched beyond their limit of tonicity and there was still some bowel power, the relief afforded was immediate, and the quantities of gas and pea-soup bowel content discharged enormous. Cessation of vomiting took place almost at once; and as a rule did not recur. If it did, gastric lavage, to clean out the bowel content which had regurgitated before the enterostomy was done, would usually suffice to check it. The character of the pulse soon improved, and in a few hours there was a change in the patient from the appearance of imminent death to one of comparative comfort. In but two instances had he found it necessary to resort to operative interference to close the fistula. So far as his individual judgment went, he had no hesitation in saying that, in his opinion, every one of his twenty patients would have died promptly if enterostomy had not been performed. Sixteen of the series were cases of peritonitis due to various causes, 2 were incident to toxemia outside the abdominal cavity, one followed on the third day after a high forceps delivery and post-partum hemorrhage, and one was reflex. The two toxemic cases, both fatal, were moribund at the time of the operation, and, excluding these, the series showed a mortality of 16.6%.

NOTE ON THE TREATMENT OF THE GASTRIC NEUROSES.

By Dr. R. W. Wilcox, New York: This paper, he said, was intended as a plea, not for less consideration of morbid gastric processes, but for more and better attention to the individual so unfortunate as to possess an unruly stomach. Formerly all the gastric neuroses, now generally enumerated as twelve, were grouped under the title "nervous dyspepsia," and from the therapeutic standpoint perhaps this was not so illogical as might be supposed. Accuracy in diagnosis was by no means to be deprecated, but in the

careful cultivation of the narrower field, the greater general condition was not to be lost sight of. From the standpoint of the therapeutist, even the substitution of the term "gastric neurosis" for "nervous dyspepsia" had not been altogether fortunate, for it had favored the conception of a gastric neurosis as a morbid entity. The conclusion was tenable that the chemistry of gastric secretion and the physics of stomach motility were not elucidated in textbooks built upon an isolated laboratory investigation. This should be predicated upon what the organism might do when its pathology was physiology gone wrong, and a neurotic subject was doing his, or usually her, utmost in the way of vagaries. In general, to the treatment given under the several subdivisions of the subject, as presented in the standard works, but little exception could be taken. Criticism needed, however, to limit what seemed to be the extensive and improper use of sodium bicarbonate in the treatment of hyperchlorhydria. Reflection and a more careful study of the chemistry of gastric secretion should lead to the substitution for this of magnesium oxide if one looked toward permanent benefit. As there was no panacea for the neurotic condition dominating the individual, so there was no specific for any one of the twelve varieties of gastric neurosis. Each individual should be studied as an entire organism. With many women in the higher walks of life, in addition to the regulation of the habits and the employment of various physical agencies, much benefit often came from the administration after meals of ten drops of tincture of nux vomica, 6 gr. of resorcinol, and 1 dr. of peppermint water, diluted in 2 oz. of water.

Other papers read were, "The Treatment of Somatic Death," by Dr. W. W. Babcock, Philadelphia; "Modern Treatment of Gastric and Duodenal Ulcer," by Dr. L. M. Gompertz, New Haven, Conn.; "The Therapeutics of Sacro-Iliac Relaxation after Operations, Labor, etc.," by Dr. A. E. Gallant, New York; "Filariasis; with Report of a Case Treatment with Dioxydiamido-arsenobenzol," by Dr. N. P. Barnes, Washington, D. C.

ELECTION OF OFFICERS.

The following officers were elected:

President, Dr. Noble P. Barnes, Washington, D. C. *First Vice-President*, Dr. Howard Van Rensselaer Albany, N. Y. *Second Vice-President*, Dr. Robert T. Morris, New York. *Third Vice-President*, Dr. Francis M. Pottenger, Los Angeles, Cal. *Secretary*, Dr. Lewis H. Taylor, Washington, D. C. *Treasurer*, Dr. A. Ernest Gallant, New York. *Chairman of the Council*, Dr. Reynold Webb Wilcox, New York. *Members of the Council*, Drs. James C. Wilson, Philadelphia; Alexander D. Blackader, Montreal; and J. Madison Taylor, Philadelphia. *Committee on Admissions*, Drs. Frederic H. Gerrish, Portland, Me.; R. D. Rudolf, Toronto; and Philip King Brown, San Francisco. *Committee on Competitive Therapeutic Research*, Drs. Wilcox, Thomas E. Slatterthwaite, New York; and Spencer L. Dawes, Albany, N. Y. *Editor of the Transactions*, Dr. P. Brynberg Porter, New York.

Next annual meeting to be held at Washington, D. C., in May, 1913.

Book Reviews.

Recent Methods in the Diagnosis and Treatment of Syphilis. By CARL H. BROWNING, M.D., and IVY MCKENZIE, M.A., B.Sc., M.B., C.H.B. With an Introduction by ROBERT MUIR, M.A., M.D., F.R.S. Philadelphia and New York: Lea & Febiger. 1912.

The literature, already very extensive, on the subject of the new methods of diagnosis and treatment of syphilis is materially added to by this book of over three hundred pages. There is a very interesting introduction by Robert Muir, which gives a clear exposition of the foundations of the modern theories and treatment. The contents of the book are, as stated in the preface, mainly a record of original work, and are of much value from their scientific precision and general conservatism. The writers hold to the view that in a suspicious case serum from the sore should be examined for spirochetes, and that even if none are detected and the blood reaction is negative, the presence of a lesion suggesting syphilis, where there is a history of exposure to infection, should be an indication for immediate treatment.

A Clinical Study of Acute Poliomyelitis. By FRANCIS W. PEABODY, M.D., GEORGE DRAPER, M.D., and A. R. DOCHEZ, M.D. New York: The Rockefeller Institute for Medical Research. 1912.

This able monograph, the fourth of the series published by the Rockefeller Institute for Medical Research, represents a report of the work on acute poliomyelitis carried on at the hospital of the institute during the summer of 1911. The report is based on 183 cases, of which complete histories of 34 are presented. The study was chiefly biologic. The history, epidemiology, pathology, symptomatology, prognosis and treatment of the disease are considered in detail, the neutralization test explained and illustrated by 13 experiments, and the examination of the blood and the cerebrospinal fluid described. The entire work is illustrated with a series of 13 plates presenting 22 figures and photomicrographs. It is a worthy contribution to the clinical knowledge of acute, epidemic anterior poliomyelitis.

An Essay on Hasheesh. Including Observations and Experiments. By VICTOR ROBINSON. New York: Medical Review of Reviews. 1912.

This monograph is hardly to be commended. Its temper, purpose and phraseology are not those of scientific research. Some of its human experiments seem scarcely justifiable. It lacks the claims to literary distinction of De Quincey's "Confessions," or the poet's praises of wine. Apart from some odd data of information there is in its substance and spirit little that is creditable to its author or his associates.

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101 Tremont Street, Boston, Mass.

THE TRANSIENT AND THE PERMANENT IN MEDICINE.

These are days of unrest in the medical profession, as in every department of human activity. Indeed, medicine merely shares in the general and profound evolutionary movements which make our own time seem peculiarly a period of transition. Not only have the scientific discoveries of our age been momentous, involving rapid changes in the aspect of medicine, but there are circumstances that seem to involve the likelihood of radical alterations in the conditions of medical practice. The adoption of the National Insurance Act in England, for instance, is one evidence of wide-reaching changes that seem impending, that indicate the imminence of an extensive readjustment in the relations of our profession to society and to civilization.

In a recent issue of the *Long Island Medical Journal*, Dr. James P. Warbasse has commented at length on this topic, and suggests that the commercialism of modern life is gradually making more and more difficult to physicians, at least in America, the dignified independence which should characterize the environment of a scientific profession. He suggests further that the necessity for individual pecuniary struggle hampers the best development of many in medicine, and of the body of medical science as a whole, and that a better condition would be found in an arrangement whereby the state should relieve selected men from the pressure of the struggle for existence, leaving them free to devote their unrestricted energies to the advancement of medical science and its application in practice to the service of humanity.

Whether or not one agree with this proposition is not a matter here to be discussed. Perhaps the sacrifice of the necessity for personal conflict would more than overbalance the gain in freedom for scientific pursuit. Probably the question is one which will be settled differently in different communities, and better by natural process than by taking thought for the morrow. What seems of most importance in such a time of change is the establishment of firm foundations, the clear recognition of principles underlying medical science which will remain unaltered under any change which after all affects only the form and manner, not the substance of medical activity. Such fundamentals are landmarks which we of to-day are particularly in danger of forgetting.

In the address in medicine, delivered on July 24 before the eightieth annual meeting of the British Medical Association, at Liverpool, Dr. G. A. Gibson discusses some of these perplexing problems and defines some of the permanent standards by reference to which their solution may be tested. The essence of his contention is that modern medicine, as a science, is primarily the pursuit and application of truth, and that in the flux and flow of conditions under which it is practiced the one essential is not to lose sight of the ultimate goal or faith in its attainment.

"We are still groping after solid facts in the dusky twilight of the dawn, but we doubt not that the bright radiance of the day will reveal much that is now hidden from our eyes. All that we can now know, all that we can now do, is the result of modern methods of investigation. Led by the whole trend of our education to set a high value on all honest work that explains the scientific problems and assists the practical treatment of disease, the results obtained by devotion to the three sister studies — physiology, pathology and pharmacology — are to us of paramount importance. It is not given to us all in equal measure to contribute to the advance of knowledge; we, as clinicians, gladly avail ourselves of the labours of those devoted men who illuminate many vexed questions by their experimental researches.

"We are like children on a beach of shifting sands; successive tides mould the form of the shore, gradually washing away, but as steadily building up, the coast of the future. So it is with ourselves; with the constant movement of thought, and the alternate advance and retreat, there are incessant changes. Contemplating these fluctuations, we are sometimes inclined to be impatient, and to wonder whether, after all, there is a real forward movement.

"But science, ever young, looks with the open eyes of Hope and Faith into the future; and those of us who can possess our souls in patience, trusting her methods, feel the assurance of greater conquests ere long. Recognizing that we live in an age of magnificent achievement, we shall be able, if there be any tendency to disappointment, to say:

'Shall we not take the ebb, who had the flow?'

For some of us, the curfew of life will soon quiver upon the evening air. It is of the very essence of our being to experience a sense of unfulfilment; to feel that we have, in some degree, been unprofitable servants. But, if we have been faithful to our beliefs, and steadfast in our labours, we shall escape the bitter regret of wasted hours and unused opportunities, and we shall enjoy the satisfaction of knowing that, to the best of our powers, we have attempted to extend the knowledge, and increase the welfare of mankind. Even if we may not see, in our own time, the ends for which we have struggled, we shall have the consoling prospect that our successors will behold what we have longed to see. In the meantime, let us, in all our doings, walk along the path of safety, through accurate observation, and unprejudiced investigation, wielding fearlessly the spear of Ithuriel in defence of eternal truth."

When so much is uncertain in the field of scientific research and of temporal welfare, these are certainly comfortable words. They show that beyond the changes and uncertainties of our own time lies the permanence of the truth which our profession is striving to discover and exemplify. Whatever the circumstances in which our personal activities may be involved, there remains always the fundamental purpose by which medical science has always been inspired and which will continue as long as mankind shall endure. We have not to be concerned about manner and means who have the end revealed to our vision.

THE NINTH INTERNATIONAL OTOLOGICAL CONGRESS.

DURING the coming week, from Aug. 12 to 17, there is to be held in Boston, at the buildings of the Harvard Medical School, the Ninth International Otological Congress, under the presidency of Dr. Clarence John Blake, of this city. Though concerned with one of the specialties, this congress, which occurs triennially, is one of considerable general medical importance and, on this occasion, of great local interest. Extensive preparations have been made, at the school and in the city, for the appropriate reception and entertainment of the distinguished delegates who will be present as representatives from other states of the Union and from many foreign countries. Invitations have been issued to meet the members of the congress at the president's reception, which will be held in the Administration Building of the Harvard Medical School on Monday evening, Aug. 12, from nine until eleven o'clock; and an elaborate program of exercises has been arranged for the sessions on the succeeding days.

On the occasion of this congress will be made the triennial award of three important prizes for original work in otology. Of these, the oldest is the Lenval Prize, which was founded in 1881, at the instigation of Dr. Benni, of Warsaw, Russia, by Baron Leon de Lenval, with a sum of 3,000 francs, the income of which, accumulating in the interval between two successive International Otological Congresses, is given "to the author of the best work on the anatomy, physiology or pathology of the organ of hearing," published during this period. The award of this prize is in the hands of a jury of nine members, elected by the general assembly of the preceding congress. The prize is awarded by a majority of their votes, after consultation with "well-known and impartial experts." The decision of the jury must take place during the congress, and its official publication is made at the last session. The prize may be divided between two candidates, but recipients of it are not eligible to compete again. The president of the awarding jury is Prof. Adam Politzer, of Vienna.

The second of the prizes to be awarded this year is the Adam Politzer Prize, which was founded by Dr. Politzer, in 1909, on the occasion of the Eighth International Otological Congress, at Budapest, Hungary, with a sum of 3,000 crowns, the income of which, accumulating during the past three years, is to be awarded "to the author of the best work in the field of otology," published in print during that period.

The third award to be made is that of the Cozzolino Prize, which was also founded on the occasion of the Eighth International Congress in 1909, by the late Prof. Vincenzo Cozzolino, of Naples, Italy, with the sum of 1,000 lire, the accumulated income of which is to be given "to the author of the best publication on the anatomy or pathology of the organ of hearing, upon clinical therapeusis, local and general, and upon the application of electrical mechanical appliances for the treatment of lesions indicated by progressive impairment of hearing and subjective noises," published during the interval between two successive congresses. Both the Politzer and the Cozzolino prizes are subject to the same terms of award as the Lenval Prize, except that the Cozzolino Prize must not be divided.

The award of these three prizes, the presence of so many eminent otologists from other centers of medical science, and the opportunity afforded for the demonstration of our local otologic clinics and educational facilities in otology, should make the Ninth International Otological Congress not only a notable success, but an occasion of great interest and profit to all its participants.

THE FARMER AND THE MILK CAN.

While spending the day in New Hampshire on a farm from which a few cans of milk are sent daily to one of the large milk-distributors of Boston, we fell into conversation with the farmer about his end of the milk business. He had an intelligent face, was neater than is common among those of his class and gave the impression of one whose word could be accepted without question.

We observed that all the shipping cans were more or less rusty inside and that their metal stoppers were battered and did not fit closely. The pails, by way of contrast, were free from rust, polished and clean. This seemed only natural, for the pails were the property of the farmer and the cans belonged to the company which buys the milk.

The farmer asked us to look more closely at the stoppers. They were of two kinds, some like a hat with the hollow uppermost, and others like a mushroom with a thick, short stem. There were six cans in all. Three had hat-shaped stoppers and in the hollows of these much dirt had collected. Rust had eaten holes through them all so that rain or melting ice which might fall into the hollow would be certain to wash the dirt directly into the milk. The mushroom stoppers, at first sight, looked better and apparently they had been made to obviate the faults of the other kind. Only one of the three was in good condition. The second had a hole an inch in diameter through its top so that the chamber inside had become a resting place for dirt which could not possibly be reached. This dirt, however, could not easily get into the milk so long as the bottom of the stopper should remain intact. On shaking the third stopper a splashing sound was heard and a little milky fluid appeared on its bottom. When a fleck of rust had been scraped away several ounces of muddy liquid ran out from inside the stopper.

The farmer complained that to clean a dirty can cost him more than the profit on the milk, that the milk company undertook to wash the cans and charged him for the washing, that he was obliged to accept such cans as were sent and that the farmer was held personally responsible for the bacterial count of his milk when taken from the can.

We were told that it was easy to tell whether the cans had been used previously by clean people and two were shown by way of illustration. The funnel-shaped mouth of one was bright and showed the marks of scrubbing; that of the other was discolored by a layer of brownish material adhering to its surface.

Having talked with one farmer and seen six cans we are not justified in supposing, nor do we suppose, that five out of every six cans belonging to the company in question are as badly stoppered. Clearly, however, that farmer cannot justly be held responsible for all the dirt in his milk and it looks as if that milk contractor had little interest in clean milk.

We have long believed that Massachusetts should have better laws governing the milk-business, that health authorities should have more power to enforce needed regulations and that the present number of milk inspectors might to advantage be increased.

FINIS CORONAT OPUS.

The death of Dr. Maurice H. Richardson leaves in the medical profession a void that can never be filled within the lifetime of any who knew him. He was a man of such immense, whole-hearted, whole-souled activity that its cessation alone seems a loss of power in the wide community which it affected. Action, indeed, was the very essence of his nature, and to him was life itself. His warm, generous personality radiated energy and was dynamic in many fields beyond those of medicine. For he was not merely a zealous and skilful surgeon; he was an ardent teacher, a genial and wholesome friend, a cordial and charming host, an eager student of all the phenomena of this busy world, a lover of all sorts and conditions of people. Every one with whom he came in contact loved him, — his patients, his colleagues, his pupils, his personal friends. The circle of those who had the privilege of his acquaintance was very large, and to each he gave in full measure from the riches of an abundant and overflowing spirit. His optimism, his faith, his sunny kindliness where all manifestations of the intensity of his vigor that burned so brightly, of the joy with which he went forth like a strong man to run a race.

His race was indeed well run, and nothing could have been finer or more to his desire than the manner of its ending, in the heyday of his power and activity. His life left nothing to be regretted by himself or others; he had received freely, and freely he gave, the best of himself to all whom he could serve. It was this eagerness to give which was at the heart of his greatness as a practitioner and as a teacher. Service with him was not self-sacrifice but self-expression.

In this shining and wonderful world he was eager to share all good things with every one. Like Chaucer's clerk of Oxenford,

"Gladly wold he lerne and gladly teache."

That was why his students became more and more enthusiastic in his admiration and affection as they came to know him better. For he was a man in whom were most fully exemplified the little things that make life great. His illustrations, the manner of his thought and speech, the courtesy of his address, his ready and intuitive sympathy, his consideration for others, his human interest, his readiness to take the responsibility from weaker shoulders, all were evidence of a spontaneous goodness of disposition that endeared him to all his associates and that time and intimacy only revealed the more profoundly.

Such were some of the characteristics that made him a leader not only in his profession, but in the hearts of men. His life has left a rich legacy of inspiration and example. For such a life does not end on earth with its own heart-beats or even with the memory of those that came within its sphere. The end crowns the work, but the life, which was his greatest contribution to the world, goes victoriously marching on.

MEDICAL NOTES.

BUBONIC PLAGUE AND ASIATIC CHOLERA AT AMOY. — Report from Amoy, China, on Aug. 1, states that during the quarter ended July 31 there were in that city 224 deaths from bubonic plague and 73 from Asiatic cholera.

CONSUMPTION OF ABSINTHE IN FRANCE. — Report from Paris on July 27 states that the total consumption of absinthe in France in 1911 was 1,000,000 gallons, and that the sum derived by the French government from the tax on its manufacture amounted to 15,000,000 francs.

DEATH OF THE MIKADO OF JAPAN. — The Emperor Mutshuhito, Mikado of Japan, whose serious illness was announced in the issue of the JOURNAL, for July 25, died in uremic coma on July 30, after a reign of forty-four years. He has been succeeded by his son Yoshihito Harunomiya. The late mikado was a man of great ability and force of character, and a friend to all scientific progress, especially in medicine.

TYPHOID FEVER AT SCRANTON. — Report from Scranton, Pa., on July 28 states that eleven attendants at the Hillside House, a local poorhouse and insane hospital, have recently been taken ill with typhoid fever. The source of the epidemic has not been determined, but all inmates of the institution have been inoculated with antityphoid vaccine to prevent further spread of the infection, whose outbreak might have been avoided by earlier use of this prophylactic measure.

TYPHOID FEVER AND BUBONIC PLAGUE IN PORTO RICO. — Report from San Juan, Porto Rico, on July 29, states that typhoid fever is epidemic in the municipality of Pennelas, eight miles from Ponce, in that island. In a population of 1,200 there are said to have been 70 cases and 5 deaths of the disease during the three weeks from July 8 to 28, inclusive. The source of infection has been traced to the local water supply. The total number of cases of bubonic plague in Porto Rico, since the outbreak of the present epidemic there, has now reached 46.

RECANTATION OF A CHRISTIAN SCIENTIST. — An incident not without humor was reported on July 30 from Washington, D. C. A gunner's mate in the United States Navy steadfastly refused to receive the prescribed prophylactic antityphoid inoculation, because he was a Christian scientist. The conscientious objector was court-martialled for refusing to obey the order of a superior officer, and was sentenced to the disciplinary camp at Port Royal, S. C. After a few days he decided to submit to the treatment, and now will probably be restored to duty. The story would be even better had the recalcitrant mate become infected with the disease and then abjured his faith after recovery.

INTERNATIONAL MEDICAL CONGRESS OF LABOR ACCIDENTS. — The Third International Medical Congress of Labor Accidents is in session during the current week at Düsseldorf, Germany, near Köln. At the several meetings, which are to be held from Aug. 6 to 10, inclusive, the following are the principal topics of discussion:

"The comparative state of the Compensation Acts in force in different countries, and the subject of insurance against occupational diseases; the importance of early functional treatment; vascular diseases and accidents; arthritis deformans and accidents; influence of accidents on cancerous diseases; the examination of injured persons, especially in respect of measurements, the formation of callosities, and the comparison between right-handed and left-handed persons. Traumatic neuroses and hernias will be excluded. Questions relating to eye and ear diseases, except in so far as they may be included under one of the preced-

ing headings, will be discussed separately on the last day of the Congress. The secretary-general is Professor Dr. Siniger, Landeshaus, Düsseldorf."

Legislative Prophylaxis of Occupation Diseases. — In the report, lately published, of the recent Second National Conference on Industrial Diseases, attention is called to the failure of our national and state governments by legislation to protect workmen from the preventable diseases of occupation. The report, which is issued by the American Association for Labor Legislation, is profusely illustrated, is divided into four parts, and closes with a bibliography compiled in co-operation with the Congressional Library and the United States Bureau of Labor.

"It is shown that in three years the Illinois Commission found 578 cases of lead poisoning in that state and that a hasty and incomplete study disclosed 121 cases of this one disease of occupation in New York City alone. Many of these were due to the absence of regulations requiring the use of simple protective devices and practices which, it is pointed out, are in general use in Germany and England under legislation providing for the payment of insurance benefits in the case of sickness directly due to industry.

"Reports of lead poisoning in New York City and of the examination of 1,413 workers in cellar bakeries and tailor shops are included in a section dealing with investigations.

"The medical inspection of factories in Illinois is shown to have resulted in the reporting of 247 cases of industrial disease from 31 manufacturing establishments during the first eight months of the law's operation. One plant is cited which had 73 cases of lead poisoning last August due to dry sandpapering of lead paint. With the use of a simple respirator for the protection of these workers as recommended by the department, the hazard of this occupation has been so far reduced that there has not been a single case of lead poisoning in that particular establishment in the last four months."

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, August 6, 1912, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 31, scarlatina 9, typhoid fever 10, measles 28, smallpox 0, tuberculosis 69.

The death-rate of the reported deaths for the week ending August 6, 1912, was 14.34.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday noon, August 3, 1912, was 187, against 169 the corresponding week of last year, showing an increase of 18 deaths, and making the death-rate for the week, 13.54. Of this number 96 were males and 91 were females; 179 were white and 8 colored; 113 were born in the United States, 70 in foreign countries and 4 unknown; 37 were of American parentage, 124 of foreign parentage and 26 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 20 cases and 1 death; scarlatina, 5 cases and 0 deaths; typhoid fever, 12 cases and 0 deaths; measles, 28 cases and 1 death; tuberculosis, 57 cases and 16 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 14, whooping cough 2, heart disease 25, bronchitis 2. There were 20 deaths from violent causes. The number of children who died under one year was 33; the number under five years, 51. The number of persons who died over sixty years of age was 56. The deaths in hospitals and public institutions were 79.

Penalties for Illegal Opium Traffic. — Before the central police court in Boston last week, a Chinese resident of this city was fined $50 for illegal sale of opium. Two other Chinese were held in $500 and $1,000 bail respectively for the federal grand jury on a charge of employing runners to collect unsmoked opium, which is worked over with new opium and the compound sold at $5 an ounce.

Massachusetts Hospitals for Consumptives. — The recently published fifth annual report of the trustees of Massachusetts Hospitals for Consumptives records the work of these institutions for the year ending Nov. 30, 1911. The four sanatoria, at Rutland, North Reading, Lakeville and Westfield, have all been kept full during this period, and for each there is a long list of applicants waiting admission. The trustees therefore recommend suitable appropriation for additional ward buildings. The reports of the superintendents and treasurers of the respective sanatoria are appended, together with numerous statistic tables.

Metropolitan Water and Sewerage Board. — The recently published eleventh annual report of the Metropolitan Water and Sewerage Board presents a detailed statement of its doings for the calendar year 1911. During this period, the principal new activities have been the construction of the Wachusett Power Plant and the extension of the East Boston Pumping Station. There are also the reports of the chief engineers of the water works and of the sewerage works; and a

series of six appendices, 44 tables and 8 plate engravings. The continued presidency of Mr. Henry H. Sprague and the reappointment of Dr. Henry P. Walcott on this board are matters for congratulation to the community.

MASSACHUSETTS STATE BOARD OF CHARITY. — The recently published thirty-third annual report of the State Board of Charity of Massachusetts presents the record of its activities for the year ending Nov. 30, 1911. In the first part is described the general work of the board, including its supervisory and administrative functions; in the second, the investigation, inspection and annual reports of incorporated private charities; and in the third, the almshouses and statistics of poor relief by cities and towns. The report is a valuable repository of data of interest to workers in organized charity and social service.

FEDERAL CONTROL OF BOSTON QUARANTINE STATION. — At a conference held last week in Boston between the Chamber of Commerce and representatives of the local shipping interests, Dr. L. E. Cofer, of the United States Public Health and Marine-Hospital Service outlined some of the advantages of federal control of the quarantine station of this port at Galloupe's Island.

"The Chamber of Commerce has long believed that the quarantine station should be conducted by the federal government because it is a national convenience and the entire expense should, therefore, not be borne by the city. Boston and Baltimore are the only large ports where the city entirely maintains the quarantine stations. New York's station is conducted by the state; Philadelphia has a combination of municipal and federal control, while all other ports have given the matter entirely into the hands of federal authorities."

The federal government now has authority to supervise the work of the Boston quarantine station, and as there is no complaint of its administration, the present arrangement seems likely to remain unchanged.

ACTIVITIES OF THE BOSTON BOARD OF HEALTH. — A report recently made by the Boston Board of Health shows that during the first thirty weeks of the current year there were in this city 6,911 deaths from all causes, as compared with 7,372 during the corresponding period of last year, a decrease of 461. These figures correspond to an annual death-rate of 15 per 1,000.

"The records from non-residents constitute the greatest influence in the death-rate of Boston, as is the fact in New York and Chicago. The infant mortality in Boston has decreased in the first thirty weeks fully 25%.

"In the diseases over which the Board of Health has control, tuberculosis in all forms leads with 801 deaths in the first thirty weeks of 1911 and 781 this year, or a decrease of 20. Diphtheria is second with 87 deaths in 1911 and 69 so far this year, a decrease of 18. Scarlet fever deaths last year numbered 63 and this year 23, a decrease of forty. Typhoid fever last year caused 25 deaths and this year 22.

"There was a decrease of 84 deaths from enteritis in children under two years, the figures being 292 for 1911 and 208 for this year, and a decrease of 18 deaths from the same trouble in children two years and over, the figures being 43 for last year and 25 for the present year. The total deaths of all children under five years was 1,876 last year and 1,717 this year, or a decrease of 159."

It may be noted that during the week ended Aug. 3 the total death-rate in this city was only 12.38, or 10.79 exclusive of non-residents. There were no deaths from diphtheria or scarlet fever and only one from typhoid. During the current week the board is making an active inspection of the sanitary condition of wharves along the water-front. Dr. Francis X. Mahoney has been designated as acting chairman of the board until the appointment of a successor to fill the vacancy caused by the recent resignation of Dr. Durgin.

NEW YORK.

DEATH FROM PELLAGRA. — Report from Hornell, N. Y., on Aug. 1, states that a death from pellagra has recently occurred in that town.

A CENTENARIAN. — Mrs. Melinda Hogle, of Mount Vernon, Westchester County, N. Y., died on July 28, at the age of one hundred years, six months and nine days. She was a native of Livingston Manor, Sullivan County, N. Y.

POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL. — At a reorganization meeting of the Board of Directors of the New York Post-Graduate Medical School and Hospital, Dr. James F. McKernon was elected president, *vice* George N. Miller, M.D., resigned. The officers are as follows: President, James F. McKernon, M.D.; second vice-president, Edward Quintard, M.D.; treasurer, William Fahnestock, Esq.; secretary, Arthur F. Chace, M.D.; secretary of the faculty, George G. Ward, Jr., M.D., and superintendent, H. T. Summersgill, M.D.

VEHICULAR TRAFFIC FATALITIES. — The National Highways Protective Society reports that in the month of July, 52 persons were killed and 199 seriously injured by vehicular traffic on

the streets of New York. Of these, 21 were killed and 168 injured by automobiles, as against 19 and 81 respectively in July of last year. On the other hand, the casualties from wagons and trolley cars were somewhat less numerous than in the corresponding month of 1911. Of those killed by automobiles, 11 were children under sixteen years of age. Twenty-four owners of automobiles were driving their cars at the time of the accident, and 13 chauffeurs ran away after the accidents.

Appointment of Dr. Woglom. — At the recent annual meeting of the Imperial Cancer Research Fund in London Dr. William H. Woglom, of Brooklyn, was appointed first assistant in New York, a post which is maintained under the Crocker Fund for the Investigation of Cancer. Dr. Woglom was graduated from the medical department of Columbia University in 1901, and since then has devoted himself to pathological work, having served in the research laboratory of the New York City Health Department and in the pathological department of St. Luke's Hospital. More recently he was sent to London by the directorate of the Crocker Fund to pursue a course of studies under Dr. Brashford, director of the Cancer Research Fund.

Tuberculosis Classes. — With the approval of the authorities of the Long Island College Hospital, Brooklyn, the executive committee of the Board of Education on July 24 adopted a resolution establishing classes for children affected with tuberculosis on the roof of that institution, to be opened in the autumn as an annex to Public School No. 6 of Brooklyn. There will be about forty pupils, and warm clothing and food supplies for the children are to be furnished by charitable societies. At present there are five schools for anemic children, with some three hundred pupils, on the roofs of different public schoolhouses in Brooklyn, and several such roof schools in Manhattan, and it is stated that Roosevelt Hospital will shortly offer the roof of one of its buildings for a school of the kind.

Recent Hospital Bequests. — By the will of the late Mrs. Ellen Collins, of New York, which bequeaths the bulk of her residuary estate to religious and benevolent objects, $5,000 is left to the American endowment fund of the Lebanon Hospital for the Insane in Syria, and $1,000 to the Lincoln Hospital and Home, New York. As to the use to be made of the money so bequeathed to these and other charities, it is stated in the will that "it shall be used to pay deficiencies of salaries, to add required rooms (but not for new departments), and to put said institutions into good shape under the existing uses."

By the will of the late James Edward Childs, of New York, vice-president and general manager of the New York, Ontario and Western Railroad, his entire estate is left for the use of his widow, but at the death of the latter all the property is to be converted into cash and divided into various legacies, among which is one of $50,000 to the Thrall Hospital at Middletown, N. Y.

Prevention of Infant Mortality. — The Health Department reports that up to July 27 there were in the city 456 fewer deaths of infants under one year old than in the corresponding period of last year. This gain is due to the saving of infant life in the borough of Manhattan, where the number of such deaths was 508 smaller than in 1911, and in the borough of Queens, where the gain was 41. In Brooklyn 33 more babies under one year died than in 1911, in Richmond, 19, and in the Bronx, 41. The head of the Division of Child Hygiene of the department reports that 15,995 infants under one year are now under the supervision of its district nurses. Among the babies so cared for there were 16 deaths in the week ending July 27, but none of these occurred among the infants enrolled at the milk stations. Of the 250,000 children under two years of age in the city, it is estimated that about 50,000 are in need of attention from public or private relief agencies, and at present no less than 43,000 are receiving such attention. This leaves but 7,000 to be similarly cared for, and it is hoped that before the close of the season the greater part of this number can be reached.

Employers' Liability Law. — In the state of New Jersey the Employers' Liability law has now been in force for one year, and while much opposition was displayed at the time of its enactment, it appears to have worked very satisfactorily. As soon as the law was passed many of the stock liability insurance companies raised their rates to an excessive scale, but when this became known the legislature adopted a measure permitting the organization, by ten or more persons, of mutual companies, with authority to issue insurance in all its branches, including industrial, accident and casualty. Immediately thereupon the rates of the stock companies were reduced to a much lower figure, for the new law, as intended, inspired the formation of mutual concerns among the large employers, and, with

the act making this a desirable consideration, it proved fatal to high rates. What this actually means to the employee, injured and seeking damages, or to the dependents of an employee killed in an industrial accident, is shown in a recent statement by William E. Stubbs, secretary of the Employers' Liability Commission, who was appointed by Governor Wilson to study the workings of the law and suggest any amendments which appeared to be necessary. "Under the old system of suing in the courts for compensation," he says, "it appears from the best figures obtainable that the injured were receiving on the average only about one third of what they were awarded by the courts — that is, the employers were paying about $3, of which $1 went to the employee (or his dependents) and $2 to his legal adviser and for court costs. The Employers' Liability law entirely eliminates that useless waste, with the exception of a very small percentage of cases which are brought before the judges of the Count of Common Pleas for adjustment." Mr. Stubbs states that there have been practically no disputes submitted to the courts over the amount of damages to be assessed, the cases so submitted being principally where the employee seeks to have his compensation commuted to one lump sum. For the protection of the workman himself the act stipulates that the compensation shall be paid in the way of a weekly amount unless ordered otherwise by the court, after a thorough investigation of the circumstances.

TYPHOID FEVER AT CORNING. — In the latest *Monthly Bulletin* of the department there is given an account of a recent outbreak of typhoid fever at Corning, Steuben County, in which the chain of evidence is one of the most clearly substantiated on record, while, at the same time, complete scientific confirmatory proof has been furnished. "In fact," says the report, "the sequence of events that have led up to the epidemic, the warnings that have been given by the department of the possibility of such an outbreak, the actual occurrence of the outbreak and the evidence as to the nature and source of infection, present a picture which is both striking and instructive; one which may well be pointed out to any community where there may be signs of carelessness or neglect of so vital a factor of public health as the protection of a public water supply." On the third of May last a telegram was received from Dr. Swain, health officer of Corning, advising the State Health Department of the occurrence of over sixty cases of typhoid fever in that city, and that the situation was considered alarming. The chief sanitary engineer was accordingly dispatched there immediately to investigate the existing conditions. From knowledge of the condition of the water supply gained from previous investigations by the department, and a careful study of the essential facts and information in connection with the conditions surrounding the water supply just prior to this outbreak, it became quickly evident that the cause of the latter was an infection of the water supply. It had been shown during previous years, from frequent analyses, that the water in the public well becomes polluted at times, and previous reports had been made as to the probable cause of this fluctuation in quality. It had also been pointed out in previous reports that the water supply was so contaminated at times as to be a serious menace to health, and that it was practically impracticable to control any purifying process by hypochloride of lime through bacteriological analyses; while the danger of an infection should the hypochloride be used under conditions which would make it impracticable to determine the infection until it was too late had been particularly emphasized.

These possible sources of danger seem to have operated in this particular instance, for on March 30 and April 1 high water occurred in the river which affected the conditions at the well in such a manner as to infect the supply. It appeared that the back-water from the lake did not get into the well, but that, on the contrary, there was a positive flow from the well outward during this high-water period. It was due largely, if not wholly, to a contamination from ground-water sources that the infection took place, although it was quite probable that this ground-water infection may have been partly caused by the back-water from the lake; this back-water filtering into the well and entering it in this way, instead of directly through the overflow pipes. It was considered unimportant, however, as to which of these influences was the more active, for the significant fact remained that the well was at this time seriously contaminated, and that as was anticipated and reported upon a year ago, it would be difficult to ascertain this contamination until too late.

Current Literature.

MEDICAL RECORD.

JULY 27, 1912.

1. BARUCH, S. *The External Use of Water for Enhancing Resistance in Tuberculosis.*
2. ATWOOD, C. E. *Treatment of Habits.*
3. *WOLBARST, A. L. *A Preliminary Report on Neosalvarsan, with Particular Reference to its Employment as an Intramuscular Injection.*

4. Manning, J. V. *Bedbugs and Bubonic Plague.*
5. Mulot, O. L. *The Error of College Criticism.*
6. Wiener, A. C. *Abdominal Tumors of Tuberculous Origin.*
7. Bram, I. *Sunstroke and Heat Prostration.*

3. Wolbarst gives the results of his clinical experience with neosalvarsan, Ehrlich's "914." He finds its effects fully as good as those of "606." Larger doses are better tolerated than is the case with salvarsan. The neutral reaction of the solution in water obviates the use of sodium hydrate, thus avoiding the possibility of thrombosis. Leakage of neosalvarsan solution into the tissues seems to be absorbed much more quickly than with salvarsan. Neosalvarsan has no apparent effect on the eyes, kidneys, heart or lungs. The neutral solution lends itself readily to intramuscular medication. The suspension in glycerine is made almost painless by adding a few drops of 1% beta eucaine or alypin solution. [L. D. C.]

New York Medical Journal.

July 27, 1912.

1. Wakefield, H. *The Tissue Density Factor.*
2. Knapp, M. I. *The Newer Teachings of the Diseases of the Alimentary Canal.*
3. Macdonald, J. B. *Insanity and Heredity.*
4. Steinhardt, I. D. *Ten Sex Talks to Girls.*
5. *Wollheim, J. L. *Mercuric Salicylate Intramuscular Injections in Syphilis.*
6. Cumston, C. G. *The Corporation of Barber Surgeons in England and Holbein's Painting.*
7. Woodbury, F. T. *Tincture of Iodine the Best Surgical Disinfectant.*
8. Fenwick, D. *The Physician as an Investor.*
9. Ballenger, E. G., and Elder, O. F. *"Neuralgia of the Testicle" Caused by Adhesions.*

5. Wollheim has spent much time and thought over the problem of relieving the pain and discomfort attendant upon intramuscular injections of mercury. Injections of insoluble mercury suspensions cause pain because of the indurations which they produce. The writer has found that quinine and urea hydrochloride makes these indurations more tolerable, in some cases entirely obviating the pain and discomfort of mercuric salicylate suspensions. Quinine and urea is non-toxic and non-habit-forming and it does not interfere with the therapeutic action of mercury on syphilis. [L. D. C.]

The Journal of the American Medical Association.

July 27, 1912.

1. King, H. D. *Plague: The Menace of the United States.*
2. Rucker, W. C. *The Necessity for Rodent Extermination in American Seaports.*
3. Gibbon, J. H. *Further Experience with Aneurysmorrhaphy (Matas).*
4. Bovée, J. W. *Gynecologic Pelvic Drainage.*
5. Haggard, W. D. *Tumors of the Small Intestine.*
6. Heidingsfeld, M. L. *Benign Epithelioma. A Study of Transitional Morphology.*
7. Mayo, C. H. *Diverticula of the Gastro-Intestinal Tract. Their Surgical Importance.*
8. Eberts, E. M. Von. *Chronic Unopened Empyema.*
9. *Robinson, S. *The Surgery of Chronic Infectious Diseases of the Lung.*
10. Flexner, S., Clark, P. F., and Dochez, A. R. *Experimental Poliomyelitis in Monkeys. Thirteenth Note. Survival of the Poliomyelitis Virus in the Stomach and Intestine.*
11. Vance, St. C. *A Case of Myositis Ossificans Traumatica.*
12. Sawins, A. H. *Tonsillectomy and a New Tonsil and Nasal Septum Knife.*
13. Babler, E. A. *Endothelioma of the Lymph Nodes of the Neck.*
14. Anders, J. M. *A New Case of Duodenal Stenosis.*
15. Malteson, E. G. *Supernumerary Axillary Mammary Glands.*

9. Robinson gives a summary of progress in lung surgery to date, especially in regard to the various forms of lung compression. He does not believe that the use of a negative or positive pressure apparatus is at all necessary in operations for acute and chronic empyema or acute post-pneumonic abscesses. Evidence tends to show that surgery of the future in tuberculosis, bronchiectasis and chronic abscess of the lung will consist in conservative rather than radical measures. It may be that in the treatment of bronchiectasis we may be most successful by at first producing compression or collapse and do excision as a secondary operation. Robinson is enthusiastic over artificial pneumothorax produced by injection of nitrogen gas in the treatment of pulmonary tuberculosis.

[E. H. R.]

Surgery, Gynecology and Obstetrics.

July, 1912.

1. Friend, E. *Mesenteric Chyle Cysts.*
2. *Moschcowwitz, A. V. *The Pathogenesis, Anatomy and Cure of Prolapse of the Rectum.*
3. Ranshoff, J. *Gastro-Enteroptosis: When is Surgery Indicated?*
4. *Davis, B. B. *The End Results of Gall-Bladder Surgery.*
5. Moore, J. E. *Infection of the Retroperitoneal Lymphatics.*
6. *Peterson, R. *The Present Status of Abdominal Cæsarean Section: When and How Should the Operation be Performed?*
7. Newman, H. P. *Surgery of the Cervix Uteri.*
8. Grant, W. W. *Chronic Infective Tenosynovitis: Report of a Most Interesting Case.*
9. Barrington-Ward, L. E. *Some End Results of Intestinal Stasis in Children.*
10. Harsha, W. M. *Bilateral Resection of the Jaw for Prognathism: Report of a Case.*
11. Eisenstardt, J. *Bilateral Resection of the Mandible to the Second Molars for Correction of Prognathism.*
12. *Pilcher, P. M. *Renal Varix.*
13. Heineck, A. P. *Hernias of the Ovary, of the Fallopian Tube and of the Ovary and Fallopian Tube: An Analytical Review of all Undoubted Cases of this Nature Reported in the French, German and English Medical Literature from 1890 to 1910 inclusive, with a Report of Unpublished Cases.*

2. Moschcowwitz admirably describes his views relative to prolapse of the rectum, which he believes to be a true form of hernia, and the method for its cure should, be therefore, on the lines of radical cure of hernia. He describes his operation, which is a reefing and obliteration of the cul de sac of Douglas done through an abdominal incision.

4. Davis, in treating of the end results in gall-bladder surgery, states that a frequent cause of unsatisfactory after-results is a chronic co-existing pancreatitis, or the failure to remove a gall bladder which is enough diseased to cause further trouble. Under the latter head he includes pericystic adhesions to a partially denuded gall bladder, a damaged cystic duct and thickened bladder walls as the principal cause of future pain and symptoms.

6. Peterson goes very carefully into the question of when Cæsarean section is or is not desirable. The paper, however, is not easily reviewed briefly.

12. Pilcher believes that renal varix is a distinct pathologic entity, and may be described as an angiomatous disease of the papillæ whose etiology and pathology resemble that of varicocele, varicose veins of the leg, varicosities of the cardiac end of the stomach, and hemorrhoidal varices. Many of the so-called cases of essential hematuria are due to this condition of the kidney. It has its own symptomatology, but it may be impossible to differentiate it, before operation, from hematuria due to nephritis and to renal papilloma. In the majority of cases, at operation, when the kidney is bisected, no gross pathological lesions will be noted, but on microscopic examination of the papillæ, a typical angiomatous disease will be found. Renal decapsulation and fixation will cure the cases of unilateral hematuria due to nephritis. Nephrotomy is is the operation of choice, because it allows a thorough examination of the kidney, and also because it accomplishes exactly what multiple ligation does in the treatment of varices. [E. H. R.]

THE LANCET.

JULY 20, 1912.

1. *MUMMERY, P. L. *Clinical Remarks on Intractable Constipation Treated by Operation.*
2. YEARSLEY, M. *The Causes Leading to Educational Deafness in Children, with Special Reference to Prevention.*
3. *HEWLETT, R. T., AND NANKWELL, A. T. *The Treatment of Diphtheria Infection by Means of Diphtheria Endotoxin.*
4. WHITING, A. J. *Recent Advances in our Knowledge of Heart Disease.*
5. ASHBY, H. T. *The Relation of Iron to Anemia in Infancy and Childhood; also Showing what a Large Amount of Iron there is Stored up in the Fetal Liver at Birth.*
6. *WALTERS, F. R. *An Improved Classification for Cases of Pulmonary Tuberculosis with a View to Comparative Statistics.*
7. CAMPBELL, H. *Observations on the Neuron.*

1. Mummery reports thirty cases of obstinate constipation on which he has operated. He divides these cases into three types, (1) obstructive, (2) atonic and (3) undue solidity of the fecal material. Among symptoms he emphasizes that of mental depression which accompanies the toxemia. He thinks that there has been too much x-ray diagnosis of theoretical "kinks" and too little practical study of pathology of this condition. He discusses the various causes of obstructive constipation: visceroptosis and atony of the bowel, — his least satisfactory class of cases, — and in this class he does not recommend surgery. (This article is one of the sanest on the subject that has appeared in British journals for some time. J. B. H.)

3. The writers have used diphtheria endotoxin in addition to and not as a substitute for antitoxin. In view of the persistence of the organism in the mouth, nose and throat in many cases long after the signs and symptoms of the disease have cleared up, and especially because of the dangers of diphtheria carriers, they felt the need of something in addition to antitoxin. Endotoxin, practically a filtrate from a bacillary emulsion of diphtheria bacilli, seems to kill the organisms in a very short while. The dosage is small, 2 mgm. at first and then at the end of a week, if the swab is still positive, 5 mgm. General disturbance following the injections was very rare. They report details of twenty-four cases. The article is of distinct practical value.

6. Walters discusses the various classifications of pulmonary tuberculosis and the objections to them, especially that in use in this country, — the classification adopted by the National Tuberculosis Association. His objections to this classification, obvious to all who have studied the subject, are, first, that although both physical signs and symptoms are taken into account there is no indication as to the relative share taken by each of these. Cases with severe constitutional disturbances and slight pulmonary lesions would be placed in the same class as those with moderate constitutional disturbances and more extensive pulmonary lesions. His other objection is that the third class of advanced consumption is, by this classification, too large. He recommends a grouping not only by local findings, but also by the chief constitutional changes, the latter indicated by the letters *a*, *b*, *c*, to each of the three groups, I, II and III. He discusses the details as to what ranges of temperature and pulse should go with each group, *a*, *b* and *c*. As to treatment, he recommends that patients staying at a sanatorium less than six weeks should be classed apart and the rest should be classified according as they have been under treatment three months or less, over three and under six months, etc.

This classification is excellent and the article of distinct practical value, particularly in view of our present unsatisfactory classification. [J. B. H.]

BRITISH MEDICAL JOURNAL.

JULY 20, 1912.

1. *SPENCER, W. G. *A Lecture on the Operations for Cancer of the Tongue.*
2. *MOORE, B. *Oxygenation and Tuberculosis.*
3. *WALL, C. *Experience of the Dioradin Treatment.*
4. *KELLY, R. E. *Anesthesia by the Intratracheal Insufflation of Ether.*
5. KENNEDY, C. M. *Acute Epiphysitis.*
6. BRISCOE, J. F. *Appendicitis in Private and Public Hospitals for the Insane.*
7. WINCH, G. H. *Gastric Adhesions as a Cause of Sudden Death.*

1. Spencer briefly discusses the various operations for tongue cancer. He urges early excision of any persistent patch or indolent ulcer as the real and only means of preventing cancer later; the early excision of an epithelioma of the tongue along with the glands of the neck is not dangerous. In the hands of the late Sir Henry Butlin, 42% of such were alive and free from recurrence three years after operation.

2. It takes only a 70% mixture of oxygen in a culture tube to inhibit the growth of the tubercle bacilli. Experiments on animals by inhaling oxygen have failed because by this method the amount of oxygen in the blood is only slightly increased and it does not reach the site of the bacilli, especially as tuberculosis naturally locates in the parts of the body which are least oxygenated. Treatment by open-air methods is in accord with this view, in that it aims at more efficient ventilation of the lungs. The writer showed by animal experiments that *cold air* alone does not inhibit the growth of tuberculous lesions. He believes that the secret of the good effects of altitude and open-air methods is, first, increased lung ventilation, and, second, increased lymph flow which comes into more intimate contact with the tuberculous lesion than does the blood, and which thus carries oxygen to the diseased part.

3. Dioradin is said to contain peptonized iodine, menthol, ethereal solutions of radium barium, chloride and almond oil. It is supposed to have a marvelous effect on tuberculous lesions. Wall has tested this preparation in this regard and concludes that as usual this preparation, like others, falls far short of the claims made for it, although it does not seem to do any great harm.

4. Kelly discusses the present status of ether insufflation and describes his own apparatus in detail and the class of cases in which this method is of benefit. [J. B. H.]

THE INDIAN MEDICAL GAZETTE.

JULY, 1912.

1. *ROST, E. R. *Second Clinical Report on the Treatment of Leprosy by the Use of a Vaccine Prepared from Cultivations of the Leprosy Streptothrix and Notes in Connection with Further Experiments.*
2. *HOSSACK, W. C. *Some Comments on the Outbreak of Rat-Plague in Suffolk and the Manchurian Epidemic of Human Plague.*
3. *WHITMORE, A., AND KEISHNASWAMI, C. S. *An Account of the Discovery of a Hitherto Undescribed Infective Disease Occurring Among the Population of Rangoon.*
4. CLEMESHA, W. W. *The Use of Ultra-Violet Rays in the Sterilization of Water.*
5. TAYLOR, H. F. L. *The Diameter of the Cornea, Especially in its Bearing on Cataract Extraction.*
6. HODGE, E. H. V. *Some Notes on an Outbreak of Epidemic Jaundice.*
7. MATSON, H. S. *Early Tuberculosis.*
8. CASTOR, R. H. *Case of Lymphadenoma.*
9. BUTT, J. W. *Case Diagnosed Acute Anterior Poliomyelitis.*

1. Rost reports the present condition of the twelve cases of leprosy, treated by vaccine, which formed the basis of his first communication on this subject in the issue of the *Gazette* for July, 1911 (reviewed in the issue of the JOURNAL for Aug. 24, 1911, vol. clxv, p. 308). All these cases remain cured or are improved. In addition, he reports a second series of ten cases, similarly treated, all of which show improvement or cure. Four of these cases are illustrated by convincing photographs. The author expresses his belief "that a diet of fish is likely to accelerate the disease," though not its cause, and "that leprosy is con-

tracted through inoculation of the skin, repeatedly and at a large number of points of entrance," usually by friction from infected clothing, not from insect-bites.

2. In connection with the current epidemic of bubonic plague in the West Indies, there is considerable interest and timeliness in this article, which avers that plague infection is largely transferred from one person to another without the intervening agency of the rat-flea.

3. The authors report what they regard as a new infective disease, cognate with glanders, prevalent in Rangoon, common among chronic morphine injectors. [R. M. G.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT. No. 27.

JULY 27, 1912.

1. *BURROWS, M. T. *Rhythmic Contractions of Isolated Heart Muscle Cells Outside the Organism.*
2. INGEBRIGTSEN, R. *Significance of Iso-Agglutinin for Homoplastic Transplanted Arteries.*
3. BOEHM, G. *The Influence of the Vagus on the Large Intestine.*
4. *UMBER, F. *Pathology of Banti's Disease.*
5. PERUSSIA, F. *A Case of "Anemia splenica" Treated with Salvarsan.*
6. VALLARDI, C. *The Spleno-Anemic Syndrome and Treatment with Salvarsan.*
7. HAHN, B. *The Serodiagnosis of Echinococcus Infection.*
8. BORNSTEIN, A. *A Clinical Method of Estimating the Circulation Time.*
9. HACKENBRUCH. *Ambulant Treatment of Fractures by Means of Traction Clamps.*
10. VULPIUS, O. *Tendon Operations and Nerve Operations in Spastic Paralysis.*
11. MYERS, V. C. *Benedict's Test for Sugar.*
12. SCHEMENSKY, W. *Occurrence and Etiology of Multiple Symmetrical Lipomatosis.*
13. HARBITZ, F. *Sarcoma Humeri Treated with Röntgen Rays.*
14. GERMAN. *An Interesting Case of Tetanus.*
15. SIESS, C. *A New Pocket Instrument for Hematological Studies.*
16. OETTLI, N. *Treatment of Anomalies of Altitude.*

1. Burrows finds by studying the embryonic muscle fibers of chick that individual fibers are capable of rhythmic contraction even when isolated. He considers this direct evidence for the myogenetic theory of the heart beat.

4. Umber gives evidence which seems to show that there is a pathological excretion of nitrogen in Banti's disease and that this disease may sometimes be cured by splenectomy. [G. C. S.]

No. 28. JULY 9, 1912.

1. *v. SOXHLET, F. *Iron Content of Human and of Cow's Milk.*
2. RIEDEL. *Early Operation for Morbus Basedowii.*
3. *KÄMMERER. *Diagnostic Intracutaneous Reaction with Extract of Spirochetes.*
4. STRÖBEL, H. *Anaphylactic Reaction of the Lung.*
5. v. BARDELEBEN, H. *Relations between Lung and Genitals in Tuberculous Women.*
6. STRAUB, W. *Narcophin, a Rational Preparation of Opium.*
7. ZEHBE. *Narcophin, a New Substitute for Morphine.*
8. SCHLIMPERT, H. *Use of Narcophin in Gynecology.*
9. SCHMIDT, H. *Effect of Opium.*
10. MÜLLER, C. *Results of Treating One Hundred Cases of Malignant Tumor by Diothermia.*
11. v. PESSL. *A Few Interesting Cases.*
12. BOVERMANN, H. *Untoward Effects of Hormonal and Pituitrin.*
13. BAISCH, B. *An Elastic Bandage for the Treatment of Mobile Scoliosis.*
14. KROMAYER. *Indications for the Quartz Lamp in the Treatment of Skin Diseases.*
15. WEILE. *Ergotin-Koffein for Myocarditis, Arteriosclerosis and Cardiac Neurosis.*
16. LIEPMANN, W. *Eclampsia Poison in the Placenta.*

1. Soxhlet says that the question of iron in milk as far as the infant is concerned should be more fully studied. He doubts the correctness of present knowledge of it.

3. Kämmerer has studied the Noguchi test for syphilis, the intracutaneous injection of a preparation of spirochetes, on 108 cases. More than half the cases reacted negatively. It was difficult in some cases to distinguish between the specific and the irritative reaction. The writer thinks the maintenance of sterility and the prevention of change in the protein of the spirochetes in only ½% phenol are stumbling blocks. [G. C. S.]

BERLINER KLINISCHE WOCHENSCHRIFT. No. 10.

MARCH 4, 1912.

1. *VON HANSEMANN, D. *Altruistic Diseases.*
2. JOCHMANN, G. *Septic Endocarditis.*
3. FERRAN, J. A. *A Reply to the Objection of Metchnikoff Concerning the Use of a Protective Inoculation for Cholera.*
4. KLIENEBERGER, O. L. *Experiences with the Salvarsan Treatment of Syphilitic and Metasyphilitic Diseases of the Nervous System.*
5. TAKATA, K. *The Normal Apex of the Lung.*
6. CZERNY, A. *The Deoderizing of Excrement in the Sickroom.*
7. RHEINDORF. *The Significance of Oxyuria in Appendicitis in Children.*
8. ROMMEL. *Dislocation of the Cervical Vertebræ.*
9. FRANCKE, C. *An Abscess Piercing Both Sides of the Foramen Ischium in the Gluteal Region.*
10. FRAENKEL, M. *The Roentgen Ray in the Struggle Against Tuberculosis.*

1. The author's use of the term "altruistic" is interesting. He points out that there are organs throughout the body, whose internal secretions are necessary to the proper metabolic activity of the body. These are altruistic organs, and among the number are the thyroid, parathyroids, adrenals and hypophysis. By altruistic diseases, he means those diseases which occur from some derangement of one of these organs, as exophthalmic goiter, myxedema, Addison's disease. He points out that the spleen cannot be regarded as an altruistic organ. [J. B. S., JR.]

No. 11. MARCH 11, 1912.

1. SONNENBURG, E. *To the Memory of Joseph Lister.*
2. LUDKE, H. *Bacillary Dysentery.*
3. EHRMANN, R. *The Diagnosis and Treatment of Disturbances of the Secretory Functions of the Stomach.*
4. APOLANT, H. *Mouse Cancer.*
5. SCHULEMANN, W. *Important Pigments and Their Chemical Reactions.*
6. *KRETSCHMER, M. *The Diagnostic Value of Leucocyte Inclusions in Scarlet Fever.*
7. SCHIROKANER, H. *Sugar Metabolism during Pregnancy.*
8. RHEINDORF. *The Significance of Oxyuria in Appendicitis of Children.* (Concluded.)
9. BEKLA, R. *The Total Mortality and the Infant Mortality, during the Summer Months in Prussia, and Particularly in the City Limits of Berlin.*

6. The author speaks of Döhle's findings of inclusions in the polynuclear leucocytes in scarlet fever, and reports thirty cases of his own in which the findings were the same. In his control cases (which the original investigator did not use), he did not find the same bodies in the blood in other diseases, in normal patients, or in the blood of animals. A photomicrograph and a description of the technic of staining accompany the article. [J. B. S., JR.]

No. 12. MARCH 18, 1912.

1. CARRELL, A. *A New Preliminary Paper on the Cultivation of Tissue Outside of the Body.*
2. WILMS. *The Formation of an Artificial Bile Duct with a Simple Drainage Tube.*
3. MÜHSAM, R. *Demonstrations in Plastic Surgery.*
4. ERLENMEYER, A. *A Description of the Periodic Changes of a "Wandering Pupil."*
5. STERN, H. *Rises in the Temperature due to Hyperthyroidism.*
6. THIELE, K. *A Diagnostic Change in the Stomach Contents in Gastric Cancer to Free Albumin.*

7. COHN, S. *The Relation of Sodium and Potassium to the Origin and the Cure of Gout, with a Consideration of Radium.*
8. LEVY-DORN, M., AND SILBERBERG, M. *Polygram, a New Kind of Roentgen Picture for the Study of the Movements or Organs.*
9. BAUER, J. *An Afterthought to my Article: "The Origin of Anaphylatoxins."*

WIENER KLINISCHE WOCHENSCHRIFT. No. 29.

JULY 18, 1912.

1. *KRAUS, R., AND HOFER, G. *Dissolution of Tubercle Bacilli and Other Acid-Fast Bacteria in the Organism.* (Second Communication.)
2. KÖHLER, R., AND LUGER, A. *An Improvement of the Meiostagmin Reaction.*
3. *ZALOZIECKI, A., AND FRÜHWALD, R. *The Knowledge of Disturbances of the Cranial Nerves in the Early Stage of Syphilis.* (To be concluded.)
4. *NOVAK, J. *Can the Formation of Peritoneal Adhesions be Prevented with Oil?*
5. SKUDRO, S. *Contribution to Poisoning by Quicksilver.*
6. ADLER, H. *The Colored Pencil Test.*
7. STUELP. *Indicanuria and Ocular Affections.*

1. In this communication from the serotherapeutic institute at Vienna, the authors describe and submit a new biologic method for the differentiation of acid-fast bacteria by preliminary treatment of the guinea pig with living acid-fast bacteria whereby the animal develops a specific solvent capacity for acid-fast bacteria.

3. In this continued communication from the dermatologic and medical clinic of the University of Leipzig, the authors attempt a contribution to the question of the applicability of sero-diagnosis.

4. Novak presents a careful study of the prophylaxis of peritoneal adhesions but does not mention the important work of Dr. J. B. Blake, of Boston, on this subject.

[R. M. G.]

IL POLICLINICO.

JULY, 1912.

SURGICAL SECTION.

1. *CIGNOZZI, O. *The Pathogenesis of Voluminous Crural Hernia, with Regard to the Remote Results of the Peritonitides and Epiploitides of the Sac.*
2. *ENRICO, P. *Experimental and Clinical Study on the Application of a Special Hemostatic Apparatus.*
3. LEOTTA, N. *Hyperplastic Hypophysary Struma with Acromegaly, and a Contribution to the Pathology and Surgery of Hypophysary Tumors.* (To be continued.)

1. In this article, which reports in detail two cases from Biondi's surgical clinic at Siena, and quotes the results of a series of 134 cases from Von Eiselsberg's clinic at Vienna, Cignozzi presents various anatomo-topographic considerations and points of operative technic, with a brief but excellent foreign bibliography on the subject.

2. Enrico describes his modified form of rubber tourniquet, reports 15 cases in which it was successfully employed on dogs, and 12 on human beings. He believes that it can be kept applied for six to ten hours without inducing a dangerous degree of ischemia or running the risk of paralysis. There is an excellent bibliography.

[R. M. G.]

Correspondence.

IDIOSYNCRASY TO EGG ALBUMIN.

PROUTS NECK, ME., July 30, 1912.

Mr. Editor: In the JOURNAL during the past year have appeared one or more reports of this condition in children. The following additional case is of interest:

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Yours truly,

WM. PEARCE COUES, M.D.

RECORD OF MORTALITY

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Philadelphia	—	—	Brookline	7	1
St. Louis	—	—	Chicopee	14	10
Baltimore	—	—	Gloucester	9	5
Cleveland	—	—	Medford	4	1
Buffalo	—	—	North Adams	9	6
Pittsburg	—	—	Northampton	5	1
Cincinnati	—	—	Beverly	4	1
Milwaukee	—	—	Revere	2	—
Washington	—	—	Leominster	2	1
Providence	—	—	Attleboro	2	—
Boston	171	57	Westfield	10	6
Worcester	41	18	Peabody	3	1
Fall River	47	27	Melrose	4	1
Lowell	38	13	Woburn	2	1
Cambridge	21	6	Newburyport	5	1
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Lynn	19	6	Marlboro	1	—
Springfield	26	9	Clinton	3	2
Lawrence	26	10	Milford	4	3
Somerville	14	4	Adams	4	1
Holyoke	33	21	Framingham	—	—
Brockton	10	2	Weymouth	—	—
Malden	7	1	Watertown	1	—
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MAURICE HOWE RICHARDSON, M.D., S.M.M.S., died at Boston on July 31, 1912, in the sixty-first year of his age.

Address.

MEDICINE AND HUMANITY: THE PHYSICIAN AS A PROMOTER OF CIVILIZATION.*

BY JOHN C. BERRY, M.D., WORCESTER, MASS.
Formerly Medical Missionary in Japan.

THE subject of my paper, "Medicine and Humanity—The Physician as a Promoter of Civilization," is one of such breadth that it is my purpose, in the brief time at my disposal, to invite attention only to some salient points of progress, and then to that beneficent work now being done by our medical confrères in the non-Christian nations of the world.

I need scarcely say that by medicine I mean all that pertains to the healing art.

Medicine had an exalted origin. To save man physically was held next in honor to saving him spiritually. The physician was supposed to receive his gifts from Deity, himself a demi-god. In the gray dawn of history so exalted was his work and yet so feeble his grasp of the laws of Nature, that tribes and nations felt the need of special medical deities. Egypt had her Iemhotep, Greece her Esculapius, India her priests of caste, China her Hoamti, and Japan her O-na-muchi-no-mikoto. Doubtless these were men who had lived for their fellows with sacrifice and service and had, in consequence, been remembered with posthumous honors and finally by deification. In that cradle of civilization, Western Asia, Herodotus tells us that when men were sick they were carried to the streets and public places, where passing sympathizers who had suffered in like manner could offer words of counsel and encouragement. It was the "Wise Men," the Magi of the East, whose counsels were most valued. They sought to cure with herbs at times, but more frequently by the Word. They performed the duties of priest and astronomer, of physician and philosopher. To them the cause of disease was a distinct entity, an evil spirit which possessed men; the cure, exorcism. They invoked the mysteries of nature to restore nature's broken law. Thus began that progressive art of healing, now developed to an exact science along many lines. The Egyptian made his contribution, but until the days of Hippocrates, four centuries before Christ, sacerdotal medicine prevailed and humanity paid the price. True, Pluto represented to Jupiter, that because of the skill of Chiron's pupil, Esculapius, the land of shades was inadequately populated—a poetic compliment only to the god of healing. Medicine remained shrouded in mystery and superstition.

With Hippocrates, rational medicine is supposed to have had its birth. Richly endowed with genius and a large capacity for work, he early revolted from the customs of his time and based his practice on observation, reason, and experience. He sought to banish mysticism and superstition from the sick-room. His achievements were brilliant, and that too at a time when Grecian culture, refinement, and learning were at their highest period of development. He was, however, no blind materialist, but recognized the fact that harmony ever exists between the Law-Giver and the natural laws of the universe. "Things are not in varying degree divine or human," said he, "but God is in all things"; "the physician is the servant of Nature, not her teacher"; "he should always benefit, never injure"; "timidity indicates incapacity; rashness, unskillfulness"; "where there is love for humanity, there will be love of the profession":—mottoes which show in him both a scientific and humanitarian spirit. When he refused to certify that Democritus was insane because the latter proclaimed the Atomic Theory, he stood for the progress of civilization and for the emancipation of his race. Offspring of Esculapius, he stands in the history of our profession as the great forbear of Bichat, Paré, Harvey, Jenner, Graefe, Virchow, Warren, Gross, Lister, and others of later time. His Oath has been an ethical guide for two thousand years. The light of his beacon flame has never gone out.

Galen, the physician of Pergamos (130-200 A. D.), the anatomist and experimental physiologist, followed. His work and his voluminous writings bear evidence of a scientific and a reverent mind. "True piety," said he, "is shown not in clouds of fragrant incense only, but in studying myself to know, and in making known to others the wisdom, power, and goodness of God," a sentiment worthily reflecting the mind of one of the world's greatest philosophers, Marcus Aurelius, whose friend Galen was. When in the seventh century, Arab hordes captured cities, burned schools, libraries, and churches, and rolled backward the tide of civilization, they guarded the writings of these physicians, saying "the ink of the physician is as valuable as the blood of the martyr." In the darkness of the centuries which followed, their writings, and those of their pupils, penetrated the gloom of dogma, and aided much in dispelling its night.

It is the law of progress that the new must ever meet the opposition of the old. Astrology now demanded its old-time recognition as a necessary adjunct to medicine, and belief in demons and witches held sway. The search for the philosopher's stone and for the elixir of life went on, while the physician patiently labored for progress. For deliverance from the thraldom of this darkness, medicine owes much to four great events: first, the discovery of America, in 1492, with its vast possibilities of material enrichment and its impulse to independent thought; second, the discovery by Copernicus, in 1543, of the revolution of the earth around the sun; third, the invention of

* The Annual Oration before the Worcester District of the Massachusetts Medical Society, May, 1912.

7. COHN, S. *The Relation of Sodium and Potassium to the Origin and the Cure of Gout, with a Consideration of Radium.*
8. LEVY-DORN, M., AND SILBERBERG, M. *Polygram, a New Kind of Roentgen Picture for the Study of the Movements or Organs.*
9. BAUER, J. *An Afterthought to my Article: "The Origin of Anaphylatoxins."*

WIENER KLINISCHE WOCHENSCHRIFT. No. 29.

JULY 18, 1912.

1. *KRAUS, R., AND HOFER, G. *Dissolution of Tubercle Bacilli and Other Acid-Fast Bacteria in the Organism.* (Second Communication.)
2. KÖHLER, R., AND LUGER, A. *An Improvement of the Meiostagmin Reaction.*
3. *ZALOZIECKI, A., AND FRÜHWALD, R. *The Knowledge of Disturbances of the Cranial Nerves in the Early Stage of Syphilis.* (To be concluded.)
4. *NOVAK, J. *Can the Formation of Peritoneal Adhesions be Prevented with Oil?*
5. SKUDRO, S. *Contribution to Poisoning by Quicksilver.*
6. ADLER, H. *The Colored Pencil Test.*
7. STUELP. *Indicanuria and Ocular Affections.*

1. In this communication from the serotherapeutic institute at Vienna, the authors describe and submit a new biologic method for the differentiation of acid-fast bacteria by preliminary treatment of the guinea pig with living acid-fast bacteria whereby the animal develops a specific solvent capacity for acid-fast bacteria.

3. In this continued communication from the dermatologic and medical clinic of the University of Leipzig, the authors attempt a contribution to the question of the applicability of sero-diagnosis.

4. Novak presents a careful study of the prophylaxis of peritoneal adhesions but does not mention the important work of Dr. J. B. Blake, of Boston, on this subject.

[R. M. G.]

IL POLICLINICO.

JULY, 1912.

SURGICAL SECTION.

1. *CIGNOZZI, O. *The Pathogenesis of Voluminous Crural Hernia, with Regard to the Remote Results of the Peritonitides and Epiploitides of the Sac.*
2. *ENRICO, P. *Experimental and Clinical Study on the Application of a Special Hemostatic Apparatus.*
3. LEOTTA, N. *Hyperplastic Hypophysary Struma with Acromegaly, and a Contribution to the Pathology and Surgery of Hypophysary Tumors.* (To be continued.)

1. In this article, which reports in detail two cases from Biondi's surgical clinic at Siena, and quotes the results of a series of 134 cases from Von Eiselsberg's clinic at Vienna, Cignozzi presents various anatomo-topographic considerations and points of operative technic, with a brief but excellent foreign bibliography on the subject.

2. Enrico describes his modified form of rubber tourniquet, reports 15 cases in which it was successfully employed on dogs, and 12 on human beings. He believes that it can be kept applied for six to ten hours without inducing a dangerous degree of ischemia or running the risk of paralysis. There is an excellent bibliography.

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IDIOSYNCRASY TO EGG ALBUMIN.

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printing, in 1462; fourth, the Reformation, early in the sixteenth century.

In England progress was greatest, and basing their work on the precepts of Bacon that knowledge increases by observation and the utilization of past observations, Harvey, Sydenham, Hunter, Bright, and their confrères established secure foundations for further progress. Sydenham's estimate of the prevailing polypharmacy was shown by his famous remark that a good clown exercised a more beneficent effect upon the health of a city, than twenty "asses" laden with drugs. He emphasized the power of nature as a remedial agent, and did much to lessen belief in charms and drugs.

In 1552 Ambrose Paré, the eminent French army and court surgeon, aided in rescuing surgery from its barbarities. The uses of hot oil poured into wounds for the control of hemorrhage he replaced by the ligature. One of Paré's mottoes reveals his spirit: "He who becomes a surgeon for the sake of money and not for the sake of knowledge, accomplishes nothing." The French gave early attention to ophthalmology, rescuing this branch of medicine from the "eye-destroyers" and placing it upon a scientific basis, an honor later shared by the German surgeon, Graefe, and his followers; while chemistry, long the servant of alchemy, was now rescued from its unworthy association and made a subsidiary science of medicine.

One of the most disturbing stones thrown into the stagnant waters of existing medical practice was by Brissot of Paris when he championed the Hippocratic method of *direct* venesection in pleuritis and other inflammations. The Greeks and the Arabians had long contended that at the outset of an inflammation the blood should be taken from a point far distant from the seat of the morbid process and in small quantities, *i.e.* drop by drop. Against this so-called derivative method, also championed by Galen, the *repulsive* method of Hippocrates was now advocated by Brissot. He won to his support a considerable following, but his claim was widely regarded as rank heresy, and the emperor, Charles V., was besought to banish him from the country. A relative of the king died at this time of pleuritis, in spite of the Arabian method of derivative bleeding, and Brissot and his methods were spared annihilation. From this time the value of clinical medicine was increasingly emphasized and the motto, "reading never made a doctor; practice forms the physician," had its effect upon men long bound by scholastic authority.

For centuries humanity thus waited and hoped and suffered, while the watchmen of medicine upon the walls sought to penetrate the gloom of ignorance and of dogma. Today, we are the inheritors of the priceless benefits of their labors. Let us glance at some of the mileposts on this path of progress. Though familiar to you all, they are of such exceeding interest as to merit review.

First in importance is the discovery of Germ Life and its Pathogenicity. The first microbe seen was by the Dutch observer, Leewenhoek, late in the seventeenth century, a century of intellectual emancipation, the century of Harvey, of Bacon, of Shakespeare, of Milton, and of Galileo. With his new invention, the telescope, Galileo discovered the stars; with his microscope, Leewenhoek discovered the microbe. Leewenhoek saw the agents of life and death. I will not discuss in detail a question which long engaged the closest attention of scholars, viz. Spontaneous Generation. It was a theory held by the Greeks and by the Romans, a theory which received for centuries the support of able medical minds until 1862 when adversely settled by Pasteur. After exhaustive experiments conducted with scientific accuracy he declared before the French Academy of Science that spontaneous generation never takes place; and two years later at the close of a lecture before the Sarbonne, he added these graphic words:—"Gentlemen, I could point to that liquid and say to you, I have taken my drop of water from the immensity of Creation, and I have taken it full of the elements fitted for the development of inferior beings; and I wait; I watch; I question it; begging it to recommence for me the beautiful spectacle of the first creation; but it is dumb,—dumb ever since these experiments were begun several years ago. It is dumb because I have kept it from the only thing which man cannot produce—from the germs which float in the air; from Life; for Life is Germ and Germ is Life. Never will the doctrine of spontaneous generation recover from the blow of this experiment." Thus ended one of the greatest controversies that had engaged the attention of the scientific world. Upon its correct solution depended our present knowledge of the origin and treatment of infectious diseases. Pasteur grasped the significance of this when he said:—"If, as I believe, the doctrine of spontaneous generation is a chimera, it is in the power of man to make parasitic diseases disappear from the surface of the globe." For the realization of this prophecy, some of the brightest minds in medicine have labored for half a century—with brilliant results, with startling tragedies. To some of these labors a more detailed reference is required.

MALARIA.

In 1880, Laveran found the malarial parasite in the blood, a discovery which he claimed would bring greater benefit to mankind than any other ever made in his laboratory. The important question was, how this microbe entered the body. Some thought it to be inhaled from marsh effluvium; others, that it was swallowed with food or water from marshy districts. In popular and in medical opinion the mosquito had long been held in some way responsible for malaria. In the seventh century a Sanskrit writer declared that the variety of mosquito

known in India as "parwatiya" was capable of producing pain in the limbs, shivering, vomiting, and fever. In East Africa the natives call malaria and the mosquito the same name—"mbu." When Stanley entered Africa, he was told that the best preventive for malaria was a mosquito net. While it was a popular impression that the mosquito was the cause of malaria, this could not be proved until the discovery of the microscope. It remained for Ronald Ross, professor of tropical medicine in London, to demonstrate the now well-known life-cycle of this parasite. The story of the final test of his theory made on the malaria-infected Roman Campagna in 1900 is familiar to all, a test conducted under rigid scientific conditions and with results proving the accuracy of Ross's discovery. Its benefit to the inhabitants of tropical countries was at once recognized. People inhabiting geographical regions where the anophele had flourished, had had vitality so lowered by malaria as to menace national stability. Brought to Greece and Rome by Asiatic slaves, the malarial parasite became more destructive to human life than an invading army. It sapped the vitality of the rural population, and especially that of the immigrating races from the north. Now, with the mosquito net and good drainage, the most deadly malarial regions may be inhabited by the Caucasian, and a higher civilization promoted. It may be interesting to note that, in the seventeenth century, the region about London was neither drained nor cultivated for several months of the year and that King James I. and Oliver Cromwell both died of malaria.

BUBONIC PLAGUE.

Equally beneficent in the interest of humanity was the discovery of the etiology of the Bubonic Plague, known also as the "Pest," the "Black Death," the "Great Mortality." Up to twenty years ago this was regarded as a "contagious fever occasioned by insalubrious atmospheric or telluric conditions." Since 544 A. D. when it first entered Europe through Constantinople, it is estimated that more than forty million human beings have died from this scourge. In London, sixty-nine thousand lives were swept away by it in 1665; and in the great plague of the fifteenth century twenty millions died in the Near East and thirteen millions in China. The Arabian physicians who published an account of the epidemic estimated that two-thirds of the inhabitants of the nations most affected by it perished. It extended even to Greenland and Iceland, where by its devastations these countries became also depopulated. It was declared to be contagious and portable, and stringent measures were instituted for its isolation, but without effect. Plague dresses were worn, red or black in color, with masks made of leather and glass openings for the eyes and a projecting beak for the nose to be filled with disinfecting substances; and such a dress was considered a protection as late as the nineteenth century. With these ideas of its etiology, nations and municipalities spent vast sums of money in removing filth, destroying clothing and burning houses, but all without avail; the scourge would continue until exhausted by the destruction of its own victims. In 1893, only nineteen years ago, the world was again startled by a fresh appearance of this scourge, at Hong Kong. Now scientific medicine was prepared to meet the enemy. Simond had recovered the plague bacillus from fleas which had bitten plague-stricken rats. He also found that the disease could be transmitted to a healthy rat when bitten by these same infected fleas. The relation of rodents to the plague in man, however, had never been established, and to this task Yersin of the Pasteur Institute, and Kitasato of Tokyo, now addressed themselves. Working independently, they both found that plague-stricken rats could not infect healthy rats, guinea-pigs or monkeys by association, as when occupying the same cage, unless fleas were added to act as carriers of the pest bacillus. This discovery afforded the information necessary for the control of the disease, namely: to exterminate the rats and to protect humans from fleas during an epidemic. A long-suffering and anxious public drew a deep breath of relief. Humanity was served, civilization promoted.

In this connection it may be interesting to note the relation of mice to Bubonic plague in the minds of Biblical writers as early as 1140 B. C. When the Philistines were directed to make propitiatory offerings, it is recorded (in 1 Samuel 6: 5, 11) "ye shall make images of your emerods, and images of your mice that mar the land," and (in chap. 5) this word "emerod" is referred to as a disease of "deadly destruction throughout the land"; "tumors that break out upon them"; "a most terrible disease of extreme loathsomeness" (Josephus).

SMALL-POX.

Not less important in the interests of humanity and civilization has been the control of small-pox. For centuries this malady stood at the head of fatal diseases. Even in European cities, then the most civilized on the globe, two thousand deaths for every million of the population was its annual toll; and in London, the annual death-rate during the last quarter of the seventeenth century was four thousand per million, or one in every two hundred and fifty of the population; while in less civilized lands whole tribes were destroyed. In Mexico, early in the sixteenth century, three million five hundred thousand people died during an epidemic. The Indians of North America suffered in like manner; and in South America, whole races were carried away as by a flood. Century after century this loathsome disease continued unabated, slaying and disfiguring its victims

around the globe. Today in communities availing themselves of the protection of Jenner's discovery of 1796, the death rate is nil. The nations do well in placing his name high among the benefactors of mankind. In him we find exemplified the spirit of his own and of a later generation. There was a note of high professional idealism among physicians. In their preparatory studies they avoided the tendency too often seen today, to quickly secure knowledge in special branches, and aimed rather to the wider and more humanistic education as the basis for professional acquirements. This contributed to self-respect and to the esteem of the public. Their social standing was high, and their relation to their patients that of physician and friend. The physician was relieved, too, of the necessity of making exorbitant charges, for the more thoughtful of the public appreciated his services and paid him accordingly. Many of his patients conformed to the sentiment of Seneca:—"Thou dost deceive thyself when thou thinkest a small fee only to be due to thy physician; for thou dost purchase from him an inestimable thing—life and good health. As he serves us, and when called neglects his own affairs for our good, so there is due to him not the wages of ordinary service, but the honorarium of a profession."

THE CONTROL OF PAIN.

This period (the first half of the nineteenth century) was one of general and wide-spread progress, and prepared the way for the realization of the world's hope:—*The Control of Pain.* To compass this had been the eager wish of ages. Indian hemp, used by the Chinese in the early centuries, the "wine of the condemned," referred to by the prophet Amos seven hundred years before Christ; and "mandragora" boiled in wine, referred to by the physician and botanist Dioscorides of the first century, were the partial anesthetics given to those about to be cut or cauterized. Until the middle of the nineteenth century the surgeon's operating room remained a chamber of horrors. Even the surgeon Paré was at times unnerved by its scenes of suffering, and Simpson desired to renounce his calling when he first saw the anguish of a patient on the operating table. The agonizing shrieks of fear and pain; the frantic efforts to get free and escape the violence of powerful assistants determined to hold him in position until the operation could be completed; the haste of the surgeon; the shock and exhaustion following, jeopardizing recovery:—such were the experiences of the surgeon, habitually realized, up to 1846.

We know what then occurred at the Massachusetts General Hospital: Dr. Warren, the surgeon, operating on a patient etherized by Dr. Morton, the dentist, in quiet and without pain. We also know the significance of this discovery; a discovery which, in the beautiful words of Sir Edwin Arnold, enables a delicate and enfeebled sufferer to pass without fear "into a world of black velvet tranquillity," to awake as good as healed, "grateful beyond words for the soft spell of enchanted peace and the surgeon's faithful skill." No wonder the type of the surgeon has changed: changed from men obtuse to suffering and careless of feeling, to men of keenest susceptibilities and of artistic temperaments. In the surgical amphitheatre, deliberation has now taken the place of haste, quiet of confusion, unconsciousness of indescribable agony. The benefit of all this to humanity the world around, with its fourteen hundred million inhabitants, not only during the last half century but during all the centuries to come, staggers human conception.

ANTISEPSIS.

Intimately associated with this, and scarcely second to it in value, stands the great discovery of antisepsis. In this presence I need not refer to its importance. The discovery, originating in Scotland, clothes the discoverer with a unique honor. It is estimated that the scientific use of its principles has saved more lives during the past forty years than were lost on the battlefields of the world during the last century. With a large degree of truth it may be said that this was the first of the great modern medical discoveries founded on a strictly scientific basis. True, steps in the line of antisepsis were hinted at by earlier writers, but they were purely empirical. The revelations of the microscope were necessary. In the late sixties and early seventies the suppuration of a wound was regarded as the normal course. If the pus remained "laudable" it was evidence that healing was progressing favorably. When the senior Gross was about to give to us at Jefferson his then famous lectures on "Inflammation," he would direct Hugh, the college janitor, to bring from the hospital a tumbler of "laudable" and another of "ichorous" pus. These were always to be had in the surgical wards. In 1869, the United States Marine Hospital Service recommended that all hospitals be built in the shape of a fan with the central offices at the hinge and the wards radiating like its ribs, and built so cheaply, too, that they could be burned down every five years and new wards erected in their place. In accordance with this suggestion the writer had one such hospital built in Japan. Septic fevers were so prevalent in the surgical wards of the older institutions built of brick and stone that the more permanent form of building was condemned. When Ambrose Paré was asked if the King of Navarre would die of his wound, he replied, "Yes; all wounds of great joints, especially contused wounds, are mortal"; and this statement remained true until 1870.

In our Civil War nearly every abdominal and brain wound resulted in death. Hospital gan-

grene was frequent, with a mortality of forty-five and six-tenths per cent.; pyemia, with a death-rate of ninety-seven and four-tenths per cent.; and tetanus, with a mortality of ninety per cent. Secondary hemorrhage arising from the suppuration of the artery at the point of ligation was a constant menace, sixty-one and seven-tenths per cent. of such cases ending fatally. Intestinal wounds carried a mortality of ninety-nine per cent. Such experiences compelled the surgeon to carry perpetual anxieties. Even as late as the Franco-German War in 1869-70, infectious septicemia was general, while suppurating wounds and the resulting nauseating stench pervaded the wards. In 1863, ten women underwent surgical operations in a house in Paris, and all were taken away in coffins. It was called the House of Death. In the Munich General Hospital, as late as 1874, eighty per cent. of all wounds were attacked by gangrene, an affection eliminated from the same wards a year later, never to return, through the adoption of Lister's principles of antisepsis. I need not picture the contrast of today: joint, abdominal cavity, chest cavity, brain, entered with impunity; cataracts extracted with success in ninety-five per cent. of all uncomplicated cases; direct transfusion of blood from the artery of the strong to the vein of the weak, after the technic of Carroll, now of common occurrence, and employed even to enable patients to sustain the strain and shock of major operations. Before 1870 sixty-six per cent. of all cases of ovariotomy died; now one per cent. or less. Then, seventy-five per cent. of the women confined in maternity wards of hospitals died of puerperal fever; now save in cases of grave accident or neglect this disease is unknown. Then, compound fractures had a mortality of sixty per cent.; now less than two per cent. Then, major amputations carried a mortality of fifty per cent.; now about five per cent.

This comparative immunity from danger has broadened the field of surgery, developed new operations, and so linked invention with surgical skill as to largely obliterate in this branch of medicine the distinction between pure and applied science. The name of Lister will forever stand as among the greatest benefactors of humanity and promoters of civilization.

YELLOW FEVER.

If anæsthesia is the greatest scientific medical discovery which the Western Hemisphere has given to the world, that of Reed, "The Cause and Control of Yellow Fever," stands next in importance. For nearly two hundred years this scourge appeared annually in Cuba, threatening our coast cities, and causing losses aggregating thousands of lives and millions of dollars. Ninety times it invaded our shores. In 1783 it caused the death of one-tenth of the entire population of Philadelphia, and in 1853, of eight thousand of the inhabitants of New Orleans. In 1878, the wide lament of our people, the far-reaching paralysis of business, and a financial loss estimated at $15,335,000 was the result of still another invasion.

In 1899 American sanitary officers labored successfully in Cuba for the control of all the infectious diseases there, save this one. Dr. Finley of Havana had advanced the theory that the cause of yellow fever was conveyed by a mosquito, but he had not succeeded in establishing the truth of his theory.

Dr. H. R. Carter of the U. S. Marine Hospital Service, had made the statement that though the usual period of incubation of yellow fever was but five days, a recent case under his care did not develop until fifteen days after exposure. Reed reasoned that this delay indicated that the infective poison must undergo a period of incubation, probably in the mosquito, and he was sent to Cuba by the United States Government, at the head of a special Commission in June, 1900, to conduct a study of the infectious diseases of that country and more especially of yellow fever. After a thorough, scientific, and heroic study covering a period of eight months he reached the following conclusions: "The specific agent of the causation of yellow fever exists in the blood of the patient during the first three days of his attack, after which he ceases to be a menace to the health of others. A mosquito of a single species, 'stegomyia fasciata,' investing the blood of the patient during this infective period, is powerless to convey the disease to another person until about twelve days have elapsed, but can do so thereafter for an indefinite period. The disease cannot spread by any other way than by the bite of the previously infected 'stegomyia.' Articles used and soiled by patients do not carry infection."

So clearly did these conclusions point to a practical method of controlling and finally of exterminating the disease that our sanitary authorities accepted and enforced the recommendations proposed, with the result that this fatal scourge which for centuries had menaced the inhabitants of the entire Western Hemisphere, is today annihilated in the place of its birth. An important practical result is now seen at the Isthmus of Panama where through these discoveries of Ross and Reed, we are able to carry forward to completion the greatest engineering feat the world has yet witnessed,—a work in which the French were defeated by malaria and yellow fever. Honor as we may the builders of this beneficent enterprise that is to make more compact a great nation and bring nearer to each other the remoter nations of the world, greater honor still must be given to these physicians without whose sacrifices and discoveries this work would still remain impossible.

Limit of time precludes adequate reference to other mile-posts in the journey of medical achievements scarcely less important in the interest of humanity and of civilization:—(a) To Tuberculosis, a disease heretofore respon-

sible for twenty-five per cent. of all deaths, but now occasioning a lessened mortality and with the prospect of its ultimate elimination from civilized communities. (b) To Diphtheria, thirty to fifty per cent. of all cases being formerly fatal, now, thanks to the discovery of Kitasato in 1890, easily controlled by the timely use of anti-diphtheritic serum. (c) To Cholera, a disease ever having new birth in the valley of the Ganges, prevailing in wide-spread epidemics among Asiatic nations, destroying sixty per cent. of all persons attacked, carrying paralysis to trade and human intercourse, and anguish and death to whole communities, now, thanks to the discovery of cholera bacillus by Koch in 1884, is easily controlled and prevented by sanitary regulation. (d) To Epidemic Cerebro-spinal Meningitis, a disease heretofore regarded with dread by the laity and with helplessness by the physician; a disease the mortality of which was ninety-five per cent. in children; a disease heretofore uninfluenced in its final issue by any treatment in vogue; and a disease whose toxins so permeate the tissues "as to make doubly difficult the discovery of an antidote capable of acting on the parasite without injuring the cells of the body." By the experiments of Flexner and Jobling this problem was solved, in 1907, they giving us an antidotal serum. Encouraging success has already been realized, and the epidemic form of "spotted fever" can now be controlled by the *timely* intraspinal injection of anti-meningitic serum. During the five years that have elapsed since the Flexner discovery about twenty-five hundred cases have been treated. "Reckoning the former mortality as seventy-five per cent. of all cases attacked, and the present mortality of all cases treated as twenty-five per cent., we have already a saving of twelve hundred and fifty lives"[1],—an earnest of eminent service for humanity in coming years. Following hard upon this we now have the assurance of encouraging progress in the discovery of an efficient serum for the treatment of Infantile Paralysis.

(e) To Typhoid Fever, now prevented from appearing among great bodies of men by the intelligent use of anti-typhoid vaccine. As late as in the Spanish-American War, ninety per cent. of our volunteer troops were ill with typhoid fever within two months after mobilization;—so stated President Taft in an address before the Medical Club of Philadelphia a year ago. Last year, from March 10th to July 10th, but one case of typhoid occurred among 12,801 protected troops, stationed at San Antonio, Texas, and this occurred in the Sanitary Corps.

(f) To Hydrophobia,—a disease invariably fatal until robbed of its terrors by the discovery of Pasteur, a discovery which, in the words of Valbeau, is "one of the finest ever made both from a scientific and a humanitarian standpoint." Of 20,745 persons who had been bitten by dogs affected with rabies, and treated at the Pasteur Institutes at Paris, Naples, and Turin, but 116 died; a mortality of but .55 of one per cent. A late word from the Director of our Institute in New York informs me that of 1307 cases treated from 1890 to 1900, but nine died, a mortality of .68 of one per cent., while with the more perfect technic of the next decade, 2,286 cases were treated with a mortality of only .017 of one per cent.

[1] Keen.

MEDICAL MISSIONS.

From these Pizgah heights of medical accomplishment men have looked out upon the non-Christian nations of the world, and in response to their needs, there has gone forth into Christendom a noble army of physicians, splendidly equipped to carry knowledge and health to these needy nations beyond the sea. For more than a hundred years the Christian Church has conducted its work of Modern Missions, seeking to duplicate as far as is humanly possible, the lofty mission of the Christ to the entire man—physical, intellectual, and spiritual. For this reason we have the marriage of the Hospital and the Church on the Mission Field. There, the physician and the priest, the healer of physical and the healer of moral infirmities, constitute the advanced guard of Christian civilization.

The need is great. Ignorance of the very rudiments of scientific medicine characterizes a large majority, yea, practically all, of the native physicians in these lands. In the greatest of these, China, the medical men are largely those who have failed in their literary examinations or in business. There is no Examining and Licensing Board. To become a physician it is only necessary to announce that you are one. Dissection is forbidden, and their knowledge of anatomy may be indicated by the following teachings:—"The heart is located mid-way between the crown of the head and the soles of the feet; it must be there, for it is the centre of life. It thinks." "The larynx goes through the lung direct to the heart." "The liver has seven lobes and contains the soul. It is the motor center of the eyes." "The small intestines communicate with the heart, the large with the lungs." "The trachea is two inches wide and one foot long." Thus as to their Anatomy. Their Therapeutics is on a similar plan:—"The gall-bladder," they teach, "is the seat of courage. Bile, therefore, is good for the coward. But there is a difference: the medical virtue of the bile of the tiger, or that of a brave criminal who has borne his execution without flinching, is greater than the bile of the faint-hearted coward."

In Persia, a favorite recourse of the physician when threatened with defeat, is to prescribe a forty days' course of a vegetable decoction, the conditions being that half a pint must be taken regularly three times a day after eating, the patient not to become angry during this entire

period. If at the end of the forty days the patient is no better, or is worse, the physician, with a grave air of sober conviction, says, "Then you must have lost your temper." This is usually true and the poor patient has to shoulder the responsibility of failure.

In Korea, a soup of tiger bones is a sure cure for cowardice; "for are not these bones the strongest part of the strongest animal?" In China, bed-bugs placed in the nostrils are claimed to be effective in curing hysteria; and in India, a donkey's tooth ground fine with charcoal, is a remedy for various eye diseases. While in Japan, the heart of a living eel, swallowed while in the act of pulsating, was long regarded as an effective remedy for anæmia. In Palestine, the treatment for the bite of a dog has been to draw a circle around the wound and then write within the circle the word "Tiger," for the spirit of the tiger, being stronger than the spirit of the dog, will surely frighten the latter away. In China, for a severe pain in the head, the ear drums are pierced "to let the pain out," while a remedy for blindness in the same country is to pierce the eyes with needles to "let the light in."

In India, a tardy labor is assisted by a plank or bamboo pole placed across the patient's abdomen, with a heavy assistant seated on each end. I recall with painful vividness one of the first cases of obstetrics seen by me in Japan. The patient had been in labor for three days; midwife and physician had left, defeated. I found the patient reclining on the matted floor, her head and shoulders elevated to an angle of forty-five degrees—the time-honored position of accouchment in that country. A baby's arm was lying on the floor, which I was told had presented and, being in the "doctor's way," had been drawn down as far as possible and amputated. By a correction of the shoulder presentation and a high forceps delivery, the dead child was removed. Long deep furrows across the baby's chest and deep lacerations in the maternal parts gave terrible testimony to the sharp obstetric hook the physician had applied in the hope of engaging it beneath some bony structure and thereby extracting the fœtus. The woman died of peritonitis.

The cause of disease in these countries is regarded as some malignant spirit, to be propitiated or frightened away. In cases of epidemics, horrible sights, as decapitated dogs hung in trees, and loud noises, as the beating of drums and the igniting of firecrackers, are employed for this purpose; and failing in this, the native magicians are sent for, to exorcise the demon from the sufferer—a process consisting of various mysterious movements and finally, of hypnotism.

Such are the conditions of ignorance, dishonesty, malpractice and suffering that have existed for centuries in these populous but undeveloped nations, conditions which have led the modern missionary church and later the great universities, Yale and Harvard, to send forth educated physicians in the interests of religion of humanity and of science.

In this beneficent work, the American Board of Boston took the lead. In 1819, Dr. John Scudder was sent to Ceylon, to be followed later by Dr. Samuel Green of Green Hill in this city, whose labors even at present are held in grateful memory by the people of Ceylon. Entering that field in 1847, he built up at Manepay, Jaffna, a large medical work and gave to the native physicians no less than thirty-two medical treatises in Tamil. These works included a five hundred page volume of surgery, a work of two hundred and fifty pages on Obstetrics, and volumes on Anatomy, Physiology, Internal Medicine, Eye Diseases, and one on Domestic Medicine, for household use. Others were: Dr. Asa Dodge, who went to Syria in 1832; Dr. Peter Parker, sent to China in 1834; Drs. Adams and Wilson, to South Africa, and Dr. Grant to Persia, in 1835.

These were the pioneers of a long line of medical missionaries who have gone out from America and Great Britain, men who have worthily represented the best traditions of their country and of their profession. It was said of Dr. Peter Parker, a native of Framingham, Mass., the founder of the first Mission Hospital at Canton, China, that he did more to advance the interests of civilization in that country than all the embassies of Lord Amherst. He was an eminent surgeon and performed more operations for urinary calculi, than any other surgeon of his generation. Dr. Kerr, his successor, performed forty thousand surgical operations during his years of service, thirteen hundred of which were for urinary calculi. In this latter work he stood second only to Sir William Thompson.

A story connected with the early work of Dr. Kenneth Mackenzie is of interest. The wife of Li Hung Chang was seriously ill and a member of the British Legation urged that Dr. MacKenzie be employed. As a result of treatment supplemented by a surgical operation, the distinguished patient was fully restored to health. The Chinese court was stirred, public interest aroused, and the result was the raising of a fund for a Mission Hospital and Dispensary, the Chinese contributing ten thousand dollars for this purpose. It should be mentioned that the success of Dr. MacKenzie's work in this instance was largely due to the presence of an American lady missionary physician, Dr. S. N. Howard, who was installed in apartments immediately adjoining those of Lady Li and carried out such details of treatment as Chinese custom would prevent a man from performing.

Interesting, too, as an outgrowth of medical missionary influence, is the work in India associated with the name of Lady Dufferin. In 1891, the wife of the Prince of Punna suffered from a serious illness. For a man to enter a "zenana," and examine and treat a lady pa-

tient, was contrary to tradition and to every sense of propriety, and could not therefore be considered. A hundred miles away at Lucknow there resided a lady medical missionary, Miss Beilby, whose services were now sought. She responded to the call, and remained with her patient several weeks. The Maharani recovered and then requested her physician, soon to return to England, to take a personal message to Queen Victoria. Dictating a letter in which she portrayed the sufferings of the women of her country for lack of intelligent medical care, she enclosed it in a locket to be worn until presented to the Queen-Empress. On reaching England an audience was granted, and the good Queen on reading the message, sent back a reply conveying the assurance that every effort for relief would have the hearty sympathy of the Sovereign. Lord Dufferin was about to take up the duties of Governor General of India, and the Queen impressed upon Countess Dufferin the importance of instituting measures for medical relief. As a result, there are now "zenana" hospitals and dispensaries presided over by seventy-four women, holding British medical diplomas, who with fifty-two native assistants, are giving relief to about two million women annually, besides children. Schools are attached to the hospitals where two hundred and fifty-seven native women are in training as physicians, hospital internes, nurses, and midwives. New hospitals and dispensaries are added from time to time.

Of other medical organizations on the mission field that are more distinctively missionary, the latest statistics give:—576 hospitals and 1077 dispensaries, presided over by 1015 physicians, 348 of whom are women. These cared for 4,317,064 patients in 1910, giving 7,578,942 treatments. Each of these strategic points of medical work is surrounded by a population of from one to three million souls. The number of medical schools and classes connected with these hospitals is 111, America and England having joined hands in the support and conduct of one of the largest of these, the Union Medical College of North China. In medicine there is neither sectarianism nor nationality.

In 1883, your speaker urged the establishment of the first nurses' training school for Japan in connection with his mission hospital there, and as a helpful annex also to mission hospitals in all mission fields. That school, presided over by Miss Linda Richards, a woman known and honored by the trained nurses of America, became a model for the nurses' schools of that country. Many of you will remember Miss Richards as the Superintendent of Nurses at the Bloomingdale State Hospital. She was America's first trained nurse, was the first Superintendent of Nurses at the Massachusetts General Hospital, and left there to found the Training School at Boston City Hospital. From this institution she resigned to come to Japan. Now, there is a training school connected with many of the prefectural hospitals in that country; and to hospitals in the different mission fields, ninety-eight nurses' schools are now attached, many of which have superintendents trained in this country. These schools have introduced a new profession in the East, to the call of which young native women are responding with eagerness and with efficiency. As representing the men and women in this foreign service I may mention the Tuckers at Pan Chuang, Atwood and Heminway at Shansi, Hume of the Yale Mission, the Harvard Mission in China and Jefferys at Shanghai, Van Allen of Madura, Marden and Hoover of Marsovan, McCord of Africa, Post of Beyrut, and Grenfell of Labrador—a noble company of physicians who today stand among the people of these non-Christian nations as the devoted and heroic representatives of the very best in our Christian civilization; while the splendidly organized work of the Gordon Memorial at Karthum, the School of Tropical Medicine in London, the Livingston College, the Edinburgh Medical Missionary Society, and the International Medical Missionary Society of New York, are all adding their contributions to this ever-widening work for Science, for Humanity, for God.

Go where one may in Turkey, in Africa, in India, in China, or in Oceanica, and the traveler is seldom beyond the reach of one of these centers of medical relief. The time, however, for their activity is limited. It took but fifty years to lift Japan from a condition of mediæval medical ignorance to one of twentieth century scientific attainment—an attainment of expert bacteriology, of expert ophthalmology, and of expert sanitary science; an attainment which led the Occident to send medical representatives to Japan's Manchurian army to learn how Japan reduced the rate of mortality in the field to a lower percentage than had been reached in any previous military campaign in history. Fifty years hence there will be such a development of medical science in China, in India, and in Turkey, as will render unnecessary our medical activities there. At present, however, these suffering but aspiring nations are eagerly stretching forth their hands to us for what we can give. With our wealth of men, of knowledge, and of means, we will not allow them to appeal in vain.

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Original Articles.

OUR PRESENT KNOWLEDGE OF THE PHYSIOLOGY AND CHEMISTRY OF GASTRIC DIGESTION AS APPLIED TO VOMITING IN INFANCY.*

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THE progress made during the last few years in connection with the physiology and chemistry of gastric digestion in infants has changed our point of view when dealing with difficult feeding cases, and especially cases of persistent vomiting. It has been the custom in the past to treat such cases empirically, increasing and diminishing percentages according to daily changes in symptoms and using lime water in various proportions according to the apparent requirements of the infant's stomach. The use of peptonizing powders has been a common practice of the medical profession for a great many years, and more recently sodium citrate has had its strong advocates for the treatment of vomiting. It is a relief therefore to feel that we are approaching a scientific method of dealing with these cases and that by starting with the stomach and a knowledge of its physiology and chemistry we can best learn what its needs may be in an individual case.

In a review of the literature on "Gastric Digestion in Infants" by Clarke[1] in 1909, he gives the credit of the first systematic chemical investigation of an infant's stomach to Leo in 1888. Clarke considers the subject under four headings: motility, acidity, pepsin-digestion, and rennin coagulation. His conclusions are briefly as follows: "All the factors present in the adult are found in a weaker form in the young infant. In the newborn child on breast-milk the stomach usually empties itself in from an hour to an hour and a half; as the child grows older this time becomes longer. The motility is more rapid in breast-fed children than in those on cow's milk or artificial food, and more rapid in the healthy than in the ill child. The acidity immediately after a meal is nil, but steadily increases during digestion, and is less in the very young than in the older. On a barley water diet free hydrochloric acid appears in the stomach in a few minutes, but on a milk diet it does not show itself for an hour or more, due to the fact that the casein absorbs it or combines with it in some way, and the free acid does not appear until the casein has taken up all required for its complete digestion. The free acid appears later in disease than in health, due to the increased amount of food in the stomach and to the slower secretion of the acid; in cases of pylorospasm the acidity is increased. Lactic and volatile fatty acids probably do not occur in healthy breast-fed infants, while in those ill or on cow's milk they are fairly common. Part of the acidity is probably due to a fat-splitting enzyme in the infant's stomach. Pepsin is present at all ages and in all kinds of health, and acts in the infant stomach though to a less degree than in the adult. The peptic digestion goes on to the stage of peptones, but not beyond that. Rennin occurs in the stomach after the first few weeks of life."

To take up these four headings in more detail and under the light of still more recent investigations I shall first consider motility. The work of Cannon[2] on the physiology of the stomach has become a classic and gives us a basis for our present knowledge and future study of gastric digestion. He has demonstrated that a certain normal tonus of the muscles of the alimentary tract is necessary for the normal peristaltic action. This tonus is stimulated by a vagus reflex due to mastication and sense of taste, and when once stimulated is continued by the rhythmical peristaltic action due to the pressure of food. The stomach during digestion is conical in shape, and because of the comparatively too little stimulation of muscle contraction at the large cardiac end and too great stimulation at the pyloric end a section between where stimulation and tonic contraction are better suited to each other becomes the seat of beginning peristaltic waves which pass toward the pylorus. This causes a churning of food at the pylorus, and by added pressure at the cardiac end, due to increased bulk of food resulting from contraction of the antrum, peristaltic contraction of the cardia is started, pushing the food from that region toward the antrum for further churning.

Thus any diminution of muscle tonus will delay peristaltic action in the stomach and tend toward lessened motility. This is in accord with experiments by Chapin[3] who studied a series of atrophic infants and demonstrated that only a small proportion of them had empty stomachs at the end of three hours and most of these were more than holding their own. The point was made that such children as a rule are fed too often and as a result fermenting food is left in the stomach to contaminate succeeding feedings, and gradually a dilated stomach results with further loss of muscle tone. Clarke[4] has demonstrated that the motility of the stomach varies inversely to the concentration of the food—the more dilute the food the quicker the stomach empties itself. Cannon has also proved that water and egg albumin in liquid form by not stimulating tonus of the gastric wall or pylorus pass rapidly out of the stomach.

Cannon[5] has further shown that peristaltic action of the stomach is not in itself responsible for the emptying of the organ; that the character of the food causes different degrees of rapidity in gastric action, depending upon the acidity of the stomach. He has shown that the rapidity with which the stomach empties itself depends on the acid control of the pylorus. In brief, the alkaline food entering the stomach from the œsophagus, after reaching a certain degree of pressure sufficient to start gastric peristalsis, tends to regurgitate back and forth into

* Read before the New England Pediatric Society on March 30, 1912.

the œsophagus until sufficient acid has been secreted to close the cardiac orifice. This food then remains in the stomach until sufficiently mixed with acid, and then by peristalsis some of the acid food reaches the pylorus which then opens, allowing it to escape into the duodenum. Here its acid reaction tends to close the pylorus and at the same time stimulate the alkaline secretions of bile and pancreatic juices which by neutralizing the acid in the further process of digestion allow the pylorus to again open and thus more food to pass out of the stomach. This process continues as long as there is food in the stomach.

The effect of different kinds of food, therefore, depends upon their action in stimulating and uniting with the hydrochloric acid secretions. Thus carbohydrates stimulate but do not unite with the acid, and hence pass quickly out of the stomach. Proteids stimulate and also unite with the acid so that they pass out more slowly, depending on the extra time needed for an excess of acid to be produced, whereas fats delay the secretion of acid and hence pass out still more slowly.

Furthermore, it has been proved that a fat-splitting enzyme is present in the infant's stomach which, although it assists in opening the pylorus by the formation of fatty acids, at the same time after a certain amount has passed into the duodenum tends to keep the pylorus closed by the continued action of the pancreatic fat-splitting enzyme,—this fat chyme remaining acid, in spite of the action of intestinal alkalies, until it has been entirely absorbed or passes along into the lower bowel. Thus the gastric digestion of fat remaining in the stomach is still further delayed. Sedgewick[6] has further demonstrated that the gastric lipase continues to act even after being mixed with the pancreatic enzyme.

The action of acid in the stomach brings up the question of the action of alkalies and antacids upon gastric digestion. The antacids naturally delay the action of the hydrochloric acid and, as will be shown later, the action of rennin and pepsin. On the other hand Clarke[4] has shown that lime water while rendering the food alkaline tends to stimulate the secretion of hydrochloric acid so that as digestion progresses the flow of hydrochloric acid increases above the normal. In other words, the action of the acid is delayed but as digestion progresses the available acid may be increased above the normal. Cowie and Lyon[7] in some more recent experiments could not find that there was any increase in acid secretion through the action of lime water. They have concluded that the infant's stomach secretes all the digestive juices from the first day of life; that the evacuation of the infant's stomach depends upon the degree of acidity, excessive acidity delaying evacuation; a total acidity varying from eight to thirty offers the normal stimulus for pyloric relaxation. That lime water does not inhibit but does delay the formation of rennin curds, and that sodium citrate inhibits the action of rennin, the curd in this case being the casein hydrochlorid curd instead of the paracasein hydrochlorid curd. This action of sodium citrate is in accord with Southworth's[8] statement emphasizing its decalcifying action, thus rendering the casein inert to the action of rennin, but allowing the formation of the softer casein hydrochlorid curd. He also emphasizes the folly of using lime water at the same time that sodium citrate is used, thus giving more calcium to be acted upon by the sodium citrate.

In general it may be said that lime water delays the action of the acid but may later by stimulating an increased secretion give an abundance of the acid. Sodium bicarbonate, by neutralizing the acid, delays all curdling of milk for a much longer period, until in fact the excess of antacid has been completely neutralized. Sodium citrate delays the action of hydrochloric acid, but its chief function is in preventing the action of rennin, allowing only for the acid formation of the casein hydrochlorid curd.

As to the chemistry of pepsin and rennin, it has been proved that they are both always present in the infant's stomach, and in order to act must have an acid medium. The rennin forms the paracasein curd which is then acted upon by the acid and changed to a free casein curd and by further action of acid to the casein hydrochlorid curd. The pepsin then acts upon this curd, changing the proteid as far as peptones but no further.

The relationship of gastric digestion to the vomiting of infants becomes, therefore, of vital interest. Vomiting in breast-fed infants is probably due almost always to a high fat percentage, usually caused by a lack of exercise plus overfeeding on the part of the mother. The remedy naturally lies in regulating the mother's daily life and, if necessary, diluting the milk. I shall not consider the subject of pylorospasm.

In bottle-fed babies the causes are more numerous. In the first place a large number of persistent vomiting cases are the result of too strong a formula at the time of weaning. A baby is often weaned from the breast because of failure to gain on the mother's milk and then put on a stock formula according to the age, regardless of the previous experience with mother's milk. The baby begins to vomit but that is explained simply because cow's milk has been started. No reduction in formula is made and the vomiting continues until the baby gradually aproaches the atrophic state. Too much emphasis cannot be laid upon the importance of beginning with a very weak formula when first putting a baby on cow's milk. The stomach has to have time to regulate itself to the extra work required in digesting the harder curd formed from this milk. Many of these vomiting cases can be relieved by reducing the fat at the out-

set, and then with a suitable alkali or antacid, according to the natural acidity of the individual stomach, gastric digestion is allowed to progress with normal activity. It is fundamentally necessary in such cases to examine the gastric contents for acidity, and almost always the litmus test is sufficient to give us a working basis. If vomiting continues, further examination of the gastric contents as to motility is necessary so that proper regulations of the intervals of feeding may be made.

There are certain cases of marasmus and atrophy where the lack of muscle tonus is the prime difficulty and this condition is often fostered by the continued use of too dilute a formula. A dilute formula is necessary at first, but after a certain time it can be seen that in order for the stomach to regain its tonus it must have a sufficient bulk of food to stimulate peristalsis. This bulk can be increased by raising the per cent. of proteid in the formula. The proper time to make this increase is often a difficult problem to solve and necessitates moreover longer intervals of feeding.

It is now definitely conceded that too high a percentage of fat may be a definite cause of persistent vomiting. Not only in the cases mentioned, at time of weaning, but in many cases successfully weaned on to cow's milk, which because of slow gain in weight have had the fat pushed to a high percentage. Talbot[9] has shown by his work on the stools of infants the ease with which excess of fat can be detected. He has demonstrated that the greater part of the fecal fat comes from the food; that in the early weeks of life there is normally a fairly large amount of fat in the stools, but later on a much larger amount of fat is absorbed, so that examination of the stools becomes of much greater value. A large amount of fat soaps in the stools signifies a putrefactive process in the alimentary tract, and such cases show a decided lack of absorption. By adding carbohydrates in excess Kendall[10] has shown that these soap stools can be changed to fatty acid stools and the fermentative bacteria be produced in the intestine. If a diarrhœa follows this change a still greater loss of weight follows. Hence it is seen, that apart from the tendency to vomit, excessive fat causes a chain of symptoms which end in severe cases of atrophy. The vomiting in these cases should be taken as a serious danger signal. I find that rarely does a healthy baby require more than three and one-half per cent. of fat, and chronic vomiting babies must be kept on a very low per cent. By keeping the fat lower in quantity it is possible to increase successfully and much earlier than formerly supposed the per cent. of proteid, and as the infant grows older this increase in proteid is a necessary factor in normal growth.

We must further bear in mind the established fact that cow's milk remains in the stomach longer than mother's milk, hence the intervals of feeding must be longer in bottle-fed than in breast-fed babies. The general average may be taken as one-half hour longer intervals in bottle-fed babies, and this interval must be further increased in babies that are ill or because of marasmus or atrophy have a diminished muscle tonus. Vomiting due to hyperacidity or hypoacidity can be easily recognized, and according to Clarke's suggestion the treatment is likewise simple, namely, the use of lime water or dilute acid in hypoacidity and the use of antacids in hyperacidity. I can give no definite experience with the use of lime water in hypoacidity, but I have frequently found that vomiting in cases of hyperacidity was not stopped, but in several cases increased, by the use of lime water, whereas it was readily stopped by the use of sodium citrate or sodium bicarbonate.

In conclusion I wish to emphasize the necessity for considering these cases of persistent vomiting, and in fact all cases of difficult digestion from the point of view of the stomach and the knowledge gained by a study of gastric physiology and chemistry. Only in this way can we hope to treat them intelligently and dium citrate or sodium bicarbonate.

NOTE. Since this paper was written Hess has demonstrated a duodenal tube by means of which food may be carried direct to the duodenum in the extreme cases of vomiting. Also by its use it will be possible to dilate the pylorus in cases of pylorospasm, and to carry on further investigations as to the action of duodenal secretions.

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Clinical Department.

PNEUMONIA NOT A RARE COMPLICATION OF HEAT PROSTRATION.

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WE feel that there is ample ground for drawing the attention of the profession to the occurrence of pneumonia following heat prostration when we state that in consulting twelve textbooks (Allen, Anders, Bain, Edwards, Hare, Pepper, Osler, Savill, Strumpell, Tyson, Wilcox, Wood and Fitz) and four systems of medicine (Allbutt's, Osler's, Sajous's, Twentieth Century) we find absolutely no mention of pneumonia as a complication or sequela of heat prostration, save in Ander's *Practice*. One sentence includes the latter's consideration of pneumonia, *i.e.*: "Fatal complications of sun-

stroke are pneumonia, meningitis, uremia and cardio-respiratory paralysis."[1] Many writers, some of whom appear to have drawn their material from the literature rather than from personal experience, make statements like A. Gordon in *Osler's Modern Medicine*, where we find: "As to the complications following sunstroke, they are all as a rule temporary, except the grave form of insanities."[2]

In the already reported "one hundred and fifty eight cases of heat prostration treated at the Boston City Hospital July 2-13, 1911"[3] we find seventeen cases of pneumonia. This makes it a complication in about 10.7 per cent., a figure of such size that we feel sure that physicians should take it into consideration in giving a prognosis of any heat case. We wish here to supplement our previous report by this one on the cases complicated by pneumonia.

ANALYSIS SHOWS:

General. 160[4] heat cases, 17 of pneumonia, 9 of which died. Heat exhaustion[5] 10 cases, 1 pneumonia with fatal result. Heat prostration 88 cases, pneumonia 10, deaths 2. Heat stroke 62 cases, pneumonia 6, all fatal. There were 44 deaths from all causes and 9 from pneumonia. Therefore, pneumonia caused one-fifth of all the deaths.

Lobar Pneumonia. 7 cases, 2 deaths, all males. Right base, 3 cases, all recovered; left base 2, with 1 death; right lower and middle, 1, no deaths; left upper lobe, 1 case with fatal result. 6 followed heat prostration and the 7th heat exhaustion; none after heat stroke. Apparent incubation between heat affection and pneumonia, 1 day, 2 cases; 2 days, 1 case; 3 days, 2 cases; 4 days, 2 cases. The deaths occurred 2 and 5 days after onset. In 3 cases the temperature fell by crisis; one of these was complicated by erysipelas. Two fell by lysis and in one of these empyema resulted.

Broncho Pneumonia. 10 cases, 7 deaths; 6 males with 5 deaths, 4 females with 2 deaths. In 3 of these cases, all rapidly fatal, both bases were involved, as in a hypostatic condition. Left lower lobe, 4 cases, 2 deaths; right lower lobe, 3 cases, 2 deaths. Six followed heat stroke with one hundred per cent. mortality, 4 followed heat prostration and but 1 of these died. The apparent incubation period was: 1 day, 1; 2 days, 3; 3 days, 3; 5 days, 2; 6 days, 1. The deaths ranged from 18 hours to 6 days, but most of them were under 2 days after the appearance of signs in the chest. In the 3 recoveries the temperature fell by lysis and the lungs were clear in 5, 7 and 9 days respectively.

Sex. Male 131, pneumonia 13, deaths 7. Female 29, pneumonia 4, deaths 2.

[1] Anders: Practice of Medicine, 1897, p. 1229.
[2] *Ibid.*, p. 55.
[3] The Author: Boston Medical and Surgical Journal, Oct. 25, 1911.
[4] This number is now 160, due to the inclusion of two fatal cases of pneumonia, 1 after heat prostration and 1 after heat stroke.
[5] For explanation of triple classification of heat prostrations see reference 3.

Age. 10-20 years, 5 cases, 1 pneumonia with recovery; 20-30 years, 25 cases, 5 pneumonia, 1 death; 40-50 years, 34 cases, 4 pneumonia, 2 deaths; 50-60 years, 28 cases, 4 pneumonia, 4 deaths; above 60 years, 28 cases, 3 pneumonia, 2 deaths.

Complications at entrance, alcohol 6, arterio-sclerosis 2, all fatal.

Sequelae. 1 case of empyema with empyema necessitans in right upper quadrant 6 weeks later. 1 case of erysipelas with abscess on forehead. Both were given surgical drainage and recovered.

SUMMARY.

Among these 160 cases, pneumonia occurred in 10.7 per cent. and was the cause of 20 per cent. of the 44 deaths.

Though not more frequent after heat stroke than after heat prostration, in the former it was much more fatal.

Lobar Pneumonia. 7 cases, 2 deaths. No cases after heat stroke. Usually affected one of the lower lobes. Incubation 1 to 4 days.

Broncho Pneumonia. 10 cases, 7 deaths. This was the only type following heat stroke and all were fatal. 3 out of the 4 following heat prostration recovered. One or both lower lobes were the only areas involved. Incubation 1 to 6 days.

Sex shows no marked difference in results.

Age. The greatest number of cases occurred between 20-30 years, but the severest mortality was in the decade 50-60 years.

Alcohol and arterio-sclerosis were fatal complications.

Erysipelas and empyema necessitans were 2 sequelæ.

CONCLUSIONS.

Medical text-books minimize or fail to mention the importance of pneumonia as a complication of heat cases. However, we note its occurrence in 10 per cent. of these cases and it caused 20 per cent. of the deaths.

To our mind, this pneumonia does not differ from that due to other causes. The greatly depressed condition of heat cases and the sometimes over vigorous measures employed to reduce the body temperature, seem sufficient and probable causes.

We append two abbreviated case histories:

Case I. Jeanette B—, 48, widow, white, housework, July 9th.

Family history: Good. Husband died of gastric fever. Past history: No previous pulmonary disease. Married 30 years ago. 1 child, 10 years, living, and well. No miscarriages. Present illness, overcome by heat on July 2d. Treated at home by cold sponging. Has felt weak and played out since. Couldn't sleep because of heat. Yesterday headache, nausea, felt feverish and thinks had slight chill. Slight pain in left side on deep respiration. Bowels and micturition normal.

Physical examination: Well developed and nourished. Very nervous, prostrated. Temperature 105°, pulse 132, respirations 30. Eyes, mouth, neck and glands not remarkable. Chest thick walled, expansion equal. Lungs, dulness near in-

ferior angle of left scapula and in left axilla, where are many fine crepitant rales and broncho-vesicular respiration. No bronchial respiration or increased fremitus. Lungs otherwise normal. Heart 2 x 9 cm. Action rapid. Soft systolic murmur at apex, not transmitted. Pulmonic second sound not accentuated. Examination otherwise not remarkable.

℞ Alcohol rub.
Ice cap.
Cracked ice.
Aloin.

Podophyllin āā gr. ¼ ev. P. M. S. O. S.

July 13th. Temperature still elevated (100°), cough less. No further developments in lungs, some fine rales still audible. Spleen not palpable, no rose spots. Widal test negative. White blood count on 11th was 17,600. Systolic at apex now absent.

July 17th. Temperature came to normal by lysis. Lungs clear save for occasional crepitant rale. Gaining strength.

July 21st. Temperature normal. Lungs clear. Up in chair and blankets.

July 25th. Physical examination normal. Strength good. Discharged well.

Summary: Woman 48, broncho-pneumonia (or central) 6 days after heat prostration. Recovery.

Case II. John O.—, 28, single, white, brass polisher.

Family history negative. Past history good. No previous pulmonary disease. Beer and whiskey periodically.

Present illness: Entered hospital July 13, 1911. Three days ago suddenly felt weak and "all in"; nauseated and tried to vomit many times but without results. Felt hot and feverish and had headache. Left off work and went home to bed where he remained till admission. Two days ago onset of pain in left side; worse on cough or deep breath. Began to cough and raised bloody sputum. Dyspnea. Vomited every time he ate anything. Anorexia. Sleep fair, bowels loose. Nocturia occasional. Thinks no loss of weight. No swelling of feet. Patient adds that previous to present illness he felt all right save for a slight "cold." Got into a cold bath 3 days ago while sweating profusely and dates symptoms from this.

Physical examination: Well developed and nourished. Breathing rapidly somewhat nervous. Temperature 104°, pulse 100, respiration 29. Eyes, mouth, neck, and glands not remarkable. Chest well developed, expansion equal. Heart, 3 x 11 cm. Sounds of good quality, action regular, basal sounds not remarkable, no murmurs. Pulses equal, regular synchronous, good volume and tension. *Lungs*, left lower lobe shows dulness, increased tactile, vocal and whispered fremitus, and definite bronchial breathing, no rales. Lungs otherwise normal to percussion and auscultation. Abdomen and extremities normal. Blood pressure 144. White blood count 22,600.

℞

Sponge bath ev. 4° S. O. S.; temp. 103°. Ice cap. Force fluids.
Salts ℥ ii ev. A. M. S. O. S.

July 17. Temperature fell to normal day after admission but rose a few hours later. Feels better, less nervous. Temperature falling again by lysis. Lungs clearing.

July 21st. Temperature normal. Lungs clearing. Eats and sleeps well. General condition good. Two sputum examinations negative to tubercle bacillus.

July 25th. Lungs almost clear, slight cough. Temperature normal. Up in chair with blankets.

July 27. Lungs clear, strength good. Has been about ward past two days.

Discharged well.

Summary: Lobar pneumonia developing apparently the day after attack of heat prostration. Cold bath while sweating. Recovery.

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Medical Progress.

RECENT PROGRESS IN LARYNGOLOGY.

BY A. COOLIDGE, M.D., AND D. C. GREENE, M.D., BOSTON.

HAY FEVER.

HAY FEVER. — BLOODLESS ENLARGEMENT OF THE NASAL CAVITIES. — THE ETIOLOGY OF TONSILLITIS. — TONSIL OPERATIONS. — VINCENT'S ANGINA. — TRANSVERSE TRACHEOTOMY. — TWO-WAY TREATMENT OF LUPUS AND LOCALIZED TUBERCULOSIS. — ALCOHOL INJECTION OF THE INTERNAL BRANCH OF THE SUPERIOR LARYNGEAL NERVE IN TUBERCULOSIS OF THE LARYNX. — EPIGLOTTIDECTOMY. — BRONCHOSCOPY. — THE CONTAGIOUSNESS OF COLDS.

Of all the diseases in the domain of laryngology, perhaps the most confusing are those which are commonly classified under the general head of vaso-motor rhinitis. These represent a group which obviously have much in common, but equally obviously are distinct one from the other. The differences have led to a confusion of terms, such as hay fever, rose cold, autumnal catarrh, horse asthma, hyperæsthetic rhinitis and paroxysmal sneezing. A type of these disturbances is represented by hay fever in which characteristic symptoms are induced by a definite form of pollen in persons who are susceptible to that special irritant. There are different forms of hay fever. In this country the two most clearly defined occur in June and in August, the first probably from the pollen of the grass family, the second from rag weed. There is also a distinct disturbance of a similar nature caused by some emanation from animals, especially horses, and others caused by different irritants or in which the irritant has to be assumed. Some patients react to one form only, others to two or more. Starting with these well-known facts the etiology of hay fever has been guessed at for the better part of a century. Until quite recently the process was explained as being due at least in part to some instability in the nervous system, hyperæsthesia of the nose and increased reflexes. The neurotic, the sedentary, and the well educated were supposed to be especially susceptible. Other theories included deviations of the septum, intranasal con-

tacts and uric acid in the blood. The irritant was supposed to be mechanical only. But none of these theories explained why one victim, who is violently afflicted every June should be entirely free from the irritation in August, whereas another is free in June but susceptible in August. Occasionally a patient would protest when told that he had hay fever because he was nervous, and argue that the cause and effect were the other way, that if he were nervous it was because he had hay fever.

The argument that hay fever is a definite biochemical reaction received its first serious evidence in the work of Dunbar, who separated a proteid from the pollen of the grass family, which placed on the nasal mucous membrane of different persons acts as a toxin in all victims of the European form of hay fever, irrespective of seasons, while all others are unaffected by it. By injecting this proteid into horses he produced an antitoxin which protected the mucous membrane from the irritant action of grass pollen.

Recent progress in the study of phenomena of anaphylaxis appears to offer hope of a better understanding of the nature of hay fever and its kindred. There seems to be no doubt in the minds of those who know as much as is known of the complications of anaphylactic processes that vaso-motor rhinitis is one of them. It is described as a local cellular anaphylaxis, in which the cells have acquired the power of digesting within themselves the special proteid to which the sufferer is susceptible.[1]

We are told that the intolerance of some persons to certain varieties of food, such as strawberries and shell fish is a similar phenomenon. Attention is called to the fact that sufferers from so-called horse asthma show special intolerance to diphtheria antitoxin or other preparations of horse serum.[2]

What anaphylaxis is and what happens most of us do not know, perhaps nobody does, but it would seem that we may have to modify our old theories of the etiology of the hay fevers. What the relation may be between the sensitive spots in the nose from which reflexes seem to spring, and which are often sought for in order to treat nasal irritations,[3] and anaphylatic rhinitis or between this and other forms of rhinitis must remain for further study.

To most persons, however, the important and interesting question is not the etiology, but the treatment of these disturbances. The treatment of hay fever has always been a difficult subject because patients are sometimes benefited or apparently cured by a large variety of methods, some of them entirely illogical, while others are not. But there can be no doubt that a proper understanding of the nature of the trouble may lead to a specific and practical method of treating it. The different preparations from the exciting irritants so far introduced do not seem to be exactly right, probably because the subject is too complicated to be so easily solved.

BLOODLESS ENLARGEMENT OF THE NASAL CAVITIES.

In order to restore normal patency in nostrils which are obstructed by prominent inferior turbinates, Killian[4] has recently advocated a bloodless operation, which consists in fracturing the turbinates longitudinally along the line of their attachment to the lateral walls and bending them downward and outward. In his article on the subject he states that for several years he has combined this procedure with turbinotomy with satisfactory results. Since his connection with the Berlin Clinic, being hampered by the lack of beds for his cases, and feeling the necessity of an effective method of enlarging the nasal cavities in out-patient cases, he has tried fracturing the turbinates without any resection. The operation is performed under cocain-adrenalin anæsthesia, either with a modified Luc forceps or a special redresser devised by Killian, which is essentially a stoutly constructed spatula with a handle at an angle of ninety degrees to the blade. With either of these instruments the lower turbinate is fractured in separate segments, beginning with the most convex portion, wherever that may be, by forcing it downward and outward. In some instances where the bone is unusually thick and strong this procedure is facilitated by cutting through the anterior part of the attachment of the turbinate with scissors or punch. Killian does not claim for the method that it is adequate in cases of marked hypertrophy of the turbinate or in those in which the lower part of the turbinate lies in close apposition with the lateral wall. In such cases the operation of resection is indicated.

THE ETIOLOGY OF TONSILLITIS.

Several questions in connection with tonsillar inflammation have come up for discussion within the last few years, and these have shown that the etiology of acute tonsillitis has never been satisfactorily explained. No one now doubts that it is of bacterial origin, but it is not positively determined whether several different micro-organisms may cause it; whether they reach the tonsil externally through the crypts, or internally through the blood or lymph currents; whether the constitutional disturbances are secondary to the tonsil infection, or the tonsillar eruption merely part of the symptom-complex of a constitutional disease. Some cases, especially of the recurrent, sub-acute type are so intimately associated with symptoms of arthritis, chorea or other disturbances that it is probable that the focus of general infection is in the detritus of the tonsillar crypts. It is important that these cases should be recognized in order that the source of the trouble may be removed, if possible. These statements are repeated so often in recent literature that quotations are unnecessary. But there is also much evidence that the outbreak in the tonsillar ring in acute tonsillitis is often to be looked upon as a localized eruption occurring in a constitutional

infection which has gained admission in some other part of the body. Such cases would, of course, not be prevented by removing tonsillar tissue. Frankel several years ago showed that nasal infection may produce acute tonsillitis.

During the past year epidemics of acute tonsillitis or septic sore throat have called attention in this country to the subject. In Europe similar epidemics have been reported in England, if not on the continent. The epidemic which we had in Boston in the spring has been fully reported in this JOURNAL.[5] Subsequent epidemics appeared in Baltimore,[6] in Chicago,[7] and in other cities. In these epidemics, the milk supply either proved to be the source of infection, or was strongly suspected. The responsible organism was a streptococcus. The clinical aspect of the tonsillar inflammation varied in different cases. There appeared to be a special disposition to complications, peritonsillar abscess, adenitis, and recurrence. The tonsils appear to have been secondary sufferers from the general infection.

The important question in connection with the pathology of the tonsils is the differentiation between those cases in which the tonsils are portals of entry for infection and those in which they may be acquitted of any responsibility. In the first case they should be removed; in the second, such operating would be at least unnecessary. In this connection the physiology, as well as the pathology of the tonsillar ring becomes important.

In regard to the function of the tonsils an interesting although not new hypothesis is elaborated by Digby,[8] who describes the processes by which the lymphatic structures of the throat and intestinal tract may protect the body, especially in youth, against infection. Being placed in positions in which bacterial invasion especially threatens, these structures seize pathogenic micro-organisms and hold them, in order to arouse a protective auto-vaccination. In other words, the tonsils are continually practising vaccine therapy, inviting the bacterial attack to a region most favorable for defense and at the same time producing and sending into the general system specific bacteriolysins and antitoxins as a protection to more vulnerable parts. In this way more or less immunity is acquired without the actual development of the disease. Or in case the defense ultimately breaks down, a certain amount of protection has already developed. Of course the removal of the tonsils leaves other similar structures to take up this function, but the theory suggests that they should not be looked upon as useless, especially in children.

TONSIL OPERATIONS.

In the present state of divided opinion in the profession as to the existence of any important function in the faucial tonsil, there is practical unanimity as to the wisdom of enucleation in those cases in which there is undoubted evidence of disease, and conservatism in operation is manifested chiefly in the decision as to what constitutes such evidence.

Enucleation, as now generally practiced by sharp or blunt dissection, or by a combination of sharp and blunt dissection, calls for a higher degree of technical skill and a more profound anæsthesia of the patient than the older method of tonsillectomy with the guillotine or punch. The result has been to make the tonsil operation a more formidable one. It takes longer, is more likely in inexperienced hands to cause injury to adjoining tissue, and is followed by a much longer and more painful convalescence. In this situation Sluder brought out in 1911 his method of tonsillectomy with the guillotine, which we have previously described.[9] In a more recent communication[10] he reports complete removal of the tonsil in capsule in over ninety per cent. of his cases by this method. Its chief advantages are: speed, with consequent minimum of anæsthesia, and less liability of injury to the faucial pillars.

The favor with which this method has been received is evinced by the modifications in technic and instruments which have already been published.[11] Beck,[12] in order to diminish hemorrhage, has devised an instrument by which the cutting is done by a wire snare. A wire loop is hidden in the slit of the fenestrated part of the tonsillotome and is continued as a twisted stylet through a canula, fixed and operated in the usual manner of the snare. The manipulation by which the tonsil is forced through the fenestrum is essentially the same as Sluder's.

Sauer [13] accomplishes the same result as Beck by a guillotine with a dull blade which is driven home by means of a screw attachment, making the blade act as an *écraseur*.

VINCENT'S ANGINA.

If Vincent's Angina can as yet be classified as a definite disease, its identity rests on a bacteriological and not on a clinical basis. The essential feature is the presence in enormous numbers of the fusiform bacillus and a spirochete on a subacute pseudo-membranous and ulcerative lesion. The most typical form is an ulceration of the tonsil, sometimes quite extensive, covered with a foul membranous deposit, but without much surrounding inflammation or constitutional disturbance. The lesion may, however, be very different from this, and may resemble diphtheria, tonsillitis, or syphilis. The same or similar micro-organisms are not infrequently found in the mouth and about the teeth, either in connection with different lesions or without any clinical disturbance. It has not been definitely settled in which cases the spirochetæ and fusiform bacilli are the exciting cause, and in which they play only a secondary part.[14] An excellent paper by Place[15] reviews briefly the literature of Vincent's Angina, and adds much interesting observation of the disease. Although generally found in the throat

or mouth, it has been reported in the larynx,[16] the bronchia,[17] and the nose.[18] It may appear apparently as the first stage of noma. As a rule it is not a serious disease. The ulcers generally heal readily with local cleanliness and applications of antiseptics, hydrogen peroxide, two per cent. solution of nitrate of silver or chromic acid, or methylene blue. It appears to be contagious but not very actively so. It is important that the disease should be better known, because it is not uncommon, at least it has been prevalent in this neighborhood during the past winter, and it is not infrequently mistaken for syphilis or diphtheria. Also proper local treatment is generally effective in getting rid of the trouble and in preventing its spread.

TRANSVERSE TRACHEOTOMY.

The transverse incision in the operation of tracheotomy offers many advantages in routine practice over the longitudinal incision in the experience of Keiner[19] of Strassbourg. In reporting seven cases he describes the technic as follows: The skin in the region just below the lower border of the cricoid cartilage is incised transversely for 2 to 3 cm. while being held up lightly by forceps in a longitudinal fold. Owing to the position of the head in extension the result of this incision is to produce an oval gaping wound, which gives a very clear view of the anatomical relationships. The wound is still further retracted by sutures placed at the middle of the upper and lower edges of the wound, the upper one drawn through the skin above the wound and the lower one through the skin below. When these sutures are both drawn and tied the result is a wide quadrangular field of operation which remains unchanged throughout the operation, thus obviating the necessity of an assistant. The linea albicans can now be clearly seen in the median line, the median veins on either side, and the neck muscles beneath. Although the most experienced operator may, when using the longitudinal incision, miss the median line of fascia, which is in some cases very narrow and faint, by this method it is practically impossible to miss it. The operation is continued by blunt dissection until the trachea is exposed without any bleeding.

The trachea is then opened by a transverse incision between the second and third rings. The head, being hyper-extended, the tracheal wound gapes wide open without retraction and the tube is easily inserted. Inferior tracheotomy may be equally advantageously performed by this method.

Greater accuracy in technic is favored by preliminary intubation, which enables the operator to work with less haste and more care.

Further advantages claimed for this method of operation are as follows: The removal and reintroduction of the canula is much easier. The skin wound in most cases heals by first intention; there is less likelihood of secondary infection, and in cases where the tube is worn for a considerable length of time, closure without fistula formation follows more quickly. In none of Keiner's cases was there any constriction of the trachea following the healing of the wound. The scar following the operation is much less, and if the incision has been a short one, and the tube not retained for any considerable length of time, it is hardly noticeable.

TWO-WAY TREATMENT OF LUPUS AND LOCALIZED TUBERCULOSIS.

In 1910 Pfannenstil[20] introduced a new principle in the treatment of lupus and other forms of localized tuberculosis, which consisted in setting free in the lesion, by a local chemical agent, a bacteriacidal substance previously ingested and thus brought by the circulation to the locality affected. The method of application is as follows: Potassium or sodium iodide is given by mouth and thus conveyed by the blood to the affected part. Externally another substance is brought into contact with the lesion, which has the power of breaking up the compound, thus liberating free iodine. In some cases Pfannenstil advises the use of ozone, and in others peroxide of hydrogen, for producing the local reaction. The former is inhaled when the lesion is not suitably located, as, for example, in the larynx, for continued local application of a solution.

Still another method of liberating iodine from its compound is by means of electrolysis, which is advocated by Reyn[21] of the Finsen Institute at Copenhagen. The latter has found by experiments that the salt of iodine is at its maximum degree of saturation in the blood between one and two hours after ingestion. He uses, therefore, a single massive dose of the salt one hour before applying the galvanic current.

It is evident that an essential condition to the success of Pfannenstil's method is that the lesion should be ulcerating in order that the oxygen may gain access to the Iodine salt. The method is inapplicable to lesions situated beneath an unbroken epithelium. Reyn's modification, on the other hand, is available for such lesions.

In his latest article Pfannenstil[22] gives the results of this treatment in cases of tubercular laryngitis, lupus of the skin and mucous membranes, and other infectious processes, which are remarkably favorable, *e.g.* he reports nine cures in fourteen cases of tubercular laryngitis.

ALCOHOL INJECTION OF THE INTERNAL BRANCH OF THE SUPERIOR LARYNGEAL NERVE IN TUBERCULOSIS OF THE LARYNX.

For the relief of the severe pain characteristic of advanced cases of tuberculosis of the larynx the injection of alcohol into the internal branch of the superior laryngeal nerve has been of late used somewhat extensively.[23] Fetterolf[24] in reporting sixteen cases calls attention to the fact that this nerve lends itself peculiarly well to injection in that it is purely sensory; it supplies

all of the lower and the greater part of the upper larynx, is comparatively near the surface, and is fairly well removed from important vulnerable structures. Branching off from the superior laryngeal it passes obliquely downward and inward to pierce the outer portion of the thyro-hyoid membrane. Having passed through the membrane it supplies all the interior of the larynx with sensory fibres with the exception of the epiglottis, in whose supply the glossopharyngeal shares. Abolition of its function will, therefore, check all pain sensations in the larynx except some of those originating in the epiglottis. As the latter is the part most accessible for removal, we have by a combination of injections and abalation ready means of dealing with pain originating in any part of the larynx.

Overlying this nerve at the point of election for injection, with the technic to be described below, are: skin, superficial fascia, platysma and a dense layer of deep cervical fascia. Beneath these structures is a fossa-like space, which lies slightly below the centre of the carotid triangle and is filled with loose areolar tissue. This region is bounded posteriorly by the sterno-cleido mastoid muscle, the facial vein and the superior thyroid artery; anteriorly by the posterior margins of the thyro-hyoid and omo-hyoid muscles; superiorly by the inferior border of the sub-maxillary gland and the hyoid bone; and inferiorly by the upper margin of the thyroid cartilage. Its floor is formed by the thyro-hyoid membrane over which run the internal laryngeal nerve and the superior laryngeal vessels.

The nerve in its course describes a distinct downward loop, the lower part of the curve reaching to the upper margin of the thyroid cartilage. In making the injection, therefore, the needle should be directed toward the lower part of the space designated, viz. near the upper border of the thyroid cartilage.

There is always present the fossa-like space and into this the needle should always go. One can be reasonably sure of having entered this space by noting the great freedom with which the needle can be moved laterally in all directions. If it is inserted beyond the confines of this space, this freedom of motion is greatly restricted.

With minor changes by individual operators, the technic employed is as follows: The solution of seventy-five to eighty per cent. alcohol containing one per cent. cocaine is warmed a little above the body temperature, and used in an ordinary hypodermic syringe for the injection. The patient is placed in a prone position, with the head turned to the side opposite the one to be injected. The operator's left hand grasps the larynx to steady it, and hold it prominently under the skin of the side to be injected, in such a way that the thumb is on the uninjected side, while the left index finger seeks the comparatively tender point where the internal branch of the superior laryngeal nerve penetrates the thyro-hyoid membrane. This point is about half-way between the upper border of the thyroid cartilage and the hyoid bone, about one cm. in front of the superior cornu of the thyroid cartilage. The index finger is held firmly in place while the needle is inserted at the point marked by the center of the nail to a depth of from one to one and one-half cm. perpendicularly to the surface. If the nerve has been accurately located, this insertion will cause pain radiating toward the ear. The injection is made slowly in this locality, until the full amount, one to two cc. has been injected.

The relief of pain according to the reports is of varying duration, from two days to two weeks or longer. When recurrence of pain takes place, reinjection may be done.

Anesthesia of the larynx may also be obtained by section of the nerve. According to Blumenthal[25] the nerve can be easily reached by dissection under local anesthesia. It should be sought for at the point where it runs on and into the thyro-hyoid membrane. Here it is of considerable thickness and is markedly distinguished from the surrounding tissues by its shining white appearance.

EPIGLOTTIDECTOMY.

Tuberculosis of the epiglottis offers a favorable field for surgical treatment. In a series of forty-seven cases of epiglottidectomy Lockard[26] reports perfect healing of the stump in forty, delayed healing in seven, and recurrence of the disease in only three. The operation not only removes one focus of the disease, but relieves the pain, which is often the worst feature, and which, as we have shown above, may be only partially removed by treatment of the internal laryngeal nerve by alcohol injection or section.

BRONCHOSCOPY.

The direct inspection of the bronchi and œsophagus for diagnosis, the extraction of foreign bodies and local treatment is the subject every year of a rapidly increasing literature. The necessarily complicated instruments and to a less extent the technic may still be divided into two groups, the European and the American. In Europe the central authority is Bruenings, who is Killian's direct successor in this work. His book published during the year in an English translation supercedes previous European publications, but it does not cover recent advance in America. Here the activity of Jackson remains pre-eminent, although a considerable amount has been added by others. The principle difference between the two methods lies in the lighting of the field, Bruenning's instruments are lighted from above and Jackson's at the distal end. A large amount of the advance in bronchoscopy and œsophagoscopy originating in America has received no attention[27] by European authors, to their loss. Killian, to

whom is due the credit of being the founder of the science contributes an historical sketch.[28] He also reports[29] several cases in which after passage of the bronchoscope in young children serious dyspnœa arose from subglottic swelling. He believes that in young children upper bronchoscopy is contra-indicated if there is already subglottic swelling or in case the foreign body is a bean which swells so quickly that it cannot be extracted through the larynx; also that in all cases the bronchoscope used should be small enough to pass readily. Killian[30] also calls renewed attention to the ease with which the larynx and deep pharynx can be seen when the head is allowed to hang down over the edge of a table suspended merely by a tongue depressor. Many cases of extraction of foreign bodies from the bronchi or œsophagus are reported both here and abroad. The use of these instruments for diagnosis and treatment is also constantly increasing. Ephraim[31] has injected different solutions through bronchoscopes into the bronchi especially for asthma with good results. Similar cases are reported by Galusser[32] and Freudenthal.[33]

THE CONTAGIOUSNESS OF COLDS.

The question whether "colds" are caused by exposure or are contagious diseases is one which now divides the community, both medical and lay. The former creed is maintained by the reactionaries with arguments of authority and personal experience, while the progressives cry error and are constantly increasing the ranks of the more modern creed. A position on the fence or on both sides of it at once is becoming a harder one to maintain. And now the question has reached the courts for decision, and it is interesting to have a judicial legal opinion from the supreme court of New Hampshire.[34] A woman had died as the result of a cold, which it was claimed that she had contracted by exposure due to negligent failure of a railroad company to keep one of its stations properly warmed. The defense claimed that colds are contagious diseases and that she would or might have caught it just as well if the station had been warm. The court ruled that where there was evidence enough to convince the jury that the woman's illness was a natural and probable result of the condition created by the railroad company, it was no defense to say that colds are contagious. No evidence has been presented of exposure to contagion or that colds were generally prevalent. Whatever the truth may be as a matter of science, there was competent evidence in this case that colds might be produced by a cold waiting room. It is for the jury to determine the probable cause on all the evidence. If it could be proved to be a "grip cold," due to a germ it might be different.

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Reports of Societies.

THE NEW ENGLAND PEDIATRIC SOCIETY.

THE twentieth meeting of the New England Pediatric Society was held in the Boston Medical Library on March 30, 1912, Dr. James Marsh Jackson in the chair. The following papers were read:

I. THE WASSERMANN REACTION IN INFANTS AND CHILDREN. A CLINICAL STUDY. F. S. CHURCHILL, M. D. SPRINGFIELD, MASS.

II. OUR PRESENT KNOWLEDGE OF THE PHYSIOLOGY AND CHEMISTRY OF GASTRIC DIGESTION, AS APPLIED TO VOMITING IN INFANCY. ALEXANDER C. EASTMAN, M. D., SPRINGFIELD, MASS.

WASSERMANN REACTION IN INFANTS AND CHILDREN

BY FRANK SPOONER CHURCHILL, M. D.,
SPRINGFIELD, MASS.

Diagnosis of congenital syphilis at times is very difficult. The Wassermann reaction is a valuable aid in diagnoses, especially in obscure cases such as late hereditary syphilis.

The author reports results of investigation among 101 cases studied at the Children's Memorial Hospital, Chicago. They obtained 39 positive results; of these 39 positive results 30 were undoubtedly syphilis, this opinion being based upon the family history or personal development or physical examination, plus a positive serum reaction. The remaining 9 cases showed no family history, no personal development, no physical examination, in any way suggestive of syphilis, and in the present state of our knowledge of the serum reaction we are not willing to regard them as certainly syphilis, although we are unable to explain the positive reaction on any other basis.

The cases were not selected ones except in a few instances, but represented the usual run of infants and children seen in the children's hospital. The results of the study tend to show that congenital syphilis is quite a wide-spread disease in infants and children of the hospital class, but as this is the first large series of hospital cases subjected to

a careful clinical study plus the serum reaction, and as these cases number the comparatively small number of 100, definite conclusions as to the actual frequency of this taint are not warranted from this study, but must wait until more extended investigations along this line have been made. It is extremely desirable that such studies should be pursued on a wide scale in different medical centers, the results published and analyzed. Such studies are being continued at the Children's Memorial Hospital.

DISCUSSION.

Dr. William P. Lucas, Boston: I was glad to hear Dr. Churchill take up this subject, which to my mind is a very neglected and also a very important subject to the pediatrician. Dr. Churchill has touched on perhaps some of the most interesting and most important points. I cannot agree with Dr. Churchill on some of his points, which I will try to bring out during the discussion. First of all I wish to emphasize the importance of realizing that a certain large group that came to our outpatient departments with an indefinite diagnosis, the diagnosis of anæmia and debility, really have a background of syphilis. The fact that a certain number of cases of rickets give a positive reaction is no objection to the fact that a positive reaction means syphilis. It simply is an indication that syphilis has broken down the structure, has undermined the system, and allowed rickets to come in. The same thing is true of tuberculosis; the same thing is true of practically all the diseases which are placed on top of the syphilitic background. The principal group in which positive reactions were obtained, as Dr. Churchill brings out, are the ones of the bony system. The bony system in syphilis, as far as the syphilitic reaction goes, is practically one hundred per cent. positive, and most of the workers in the Wassermann reaction, as such, have concluded that a positive reaction is found in almost every case where the bony system is involved. The importance of that in cardiac conditions is now beginning to be brought before the medical profession. Warton, in his paper, shows that without any other evidences of syphilis, from very minute and very careful histological investigations of autopsy material where it showed no other lesions, syphilis was present in the cardiac muscles. Anyone who has worked in the pathology of syphilis knows what a difficult proposition you face when you try to show it by histological methods. That, I think, is a very important question in regard to group 5, especially as to the first four cases which Dr. Churchill rules out. You could not assume, it seems to me, that any one of these four cases were not syphilitic. A positive Wasserman reaction means syphilis whether you find that organism by histological examination or not. In this work it is necessary to have the work done by a neuropathologist; I would go as far as to say that the ordinary pathologist's word would not be accepted in the work for the diagnosing of true syphilitic lesions. The staining and the finding of these lesions are very difficult and need a special staining, so that ruling out these cases it is very hard to determine. For example, you can have a positive tuberculin reaction in a patient and at autopsy it is very hard to find where the lesion was, or what gland was affected, only discovering in a general way some indication of tuberculosis. Now the same thing is true, I believe, of syphilis. Besides the points which Dr. Churchill brought out and which, to my mind are very important, I would add another, now that we are emphasizing the importance of breast feeding by wet-nurses. I think the importance of the Wassermann reaction in that class of cases cannot be overestimated. In carrying out that work which Dr. Talbot started at the wet-nurse bureau, he very wisely started by having all the wet-nurses examined. Out of the last 21 wet-nurses examined there, three gave a positive Wassermann reaction. Now these wet-nurses, so to speak, represent the cream of their class, for if there is anything whatever objectionable in the history or examination they are refused.

When accepted, a complete physical examination is made and if any lesions are found or anything whatever questionable they are ruled out. So that these 21 cases tested were all cases where the physical examination as far as could be made out was absolutely negative, so that your physical examination cannot be absolutely relied upon in these cases, and a Wassermann test should always be done. I would mention a very interesting case which came to my attention within the last few months. A mother's blood was sent in for the test as they were doing a certain number of routine tests in the wards. Her reaction was positive. We were very much interested as she showed no lesions whatever, but she gave birth to a good, pronounced syphilitic baby. There is a case where the physical examination is negative, and, if that woman went out as a wet-nurse the danger to the infant would be great. The question of the Wassermann reaction brings up important points in regard to Colles' law and Profeta's law, whether a healthy mother can give birth to a syphilitic child, and whether a syphilitic child can infect its healthy mother. Several hundred tests have been carried out with regard to this in France and Germany. In some of the cases the syphilis may be latent, not showing itself, as Dr. Churchill has said, until puberty, and by indefinite signs during the intermediate period.

Dr. John L. Morse, Boston: I know very little about this subject from actual experience, but there were several things in Dr. Churchill's paper which seemed of special interest. In the first place, I am surprised at the frequency with which Dr. Churchill obtained a positive reaction. It would seem to me to be of great interest to try the Wassermann test on one hundred well babies from the hospital class to find out how many of them give a positive reaction and to use this as a basis for comparison in estimating of how much importance the Wassermann reaction is in determining the presence of syphilis in the causation of other disorders. I am inclined to think that it will be found in a certain number of apparently well children just as it is in adults. In connection with the Wassermann test in babies, it is very much easier to get the cerebrospinal fluid by lumbar puncture than it is to get the blood from the baby.

Dr. Roger I. Lee, Boston: Dr. Churchill has taken a very broad point of view. No one doubts but that the pathologically syphilitic child or adult will have a positive reaction, the normal child or adult will have a negative reaction. I cannot help admiring Dr. Churchill's courage in picking out these children with a great many diagnoses and having a Wassermann test done on them. The one great criticism of the Wassermann test is that we have not had enough tests done upon a great many

ordinary diseases. I think the feeling nowadays is very distinctly that the Wassermann test is not a specific test; and since we are leaning toward the idea that the Wassermann test is not a biological test but a chemical test, there does not seem to be any reason why the Wassermann test should be absolutely specific. We all know that you occasionally get a negative Wassermann test when you have a perfectly definite syphilitic lesion, a lesion from which you can recover the spirochæte. Moreover, you can get a positive Wassermann test in certain conditions, and Dr. Churchill has named a few of them, in which there is no apparent possibility of their being syphilitic. It seems to me that group 5, table 3, would probably include a goodly number of debilitated children whose sera were so modified by various diseases that they gave a positive Wassermann reaction without any error in technique or without any syphilitic taint. I think this series of cases would illustrate the fact that the Wassermann test is a very valuable one but that it is not absolutely accurate or absolutely specific. In this connection I will cite the instance of a New York man who was asked if a positive Wassermann reaction meant syphilis. He replied: "Why, I tell no one that the Wassermann reaction means that a person has or has not syphilis. All I say is, that if a person has a positive reaction he probably needs mercury."

DR. WILLIAM P. LUCAS, BOSTON: Dr. Morse speaks about testing the spinal fluid and not the blood in infants. The Wassermann reaction as such in congenital syphilis will give a negative reaction in the majority of cases of spinal fluid examinations unless the central nervous system is involved. Therefore, the examination of a series of spinal fluids in congenital syphilis would not give any indication of the value of the Wassermann reaction. I would give this illustration: A prominent surgeon sent in blood from an undoubted case of carcinoma. He received a positive reaction. He did not operate. The patient died of carcinoma, and the surgeon said that the patient did not have syphilis, whereas, going back into the history it was proved beyond doubt that the case had latent syphilis, but that was no reason why the case should not have carcinoma. A positive Wassermann reaction means that the person has been at some time infected by the spirochæte. It does not mean that the active process going on at the present time need necessarily be syphilis.

DR. F. B. TALBOT, BOSTON: Noguchi has developed a skin test with leutin, which is performed by the intradermal injection of a suspension of dead spirochæatæ, and at the end of 48 hours a papule forms underneath the skin which develops and takes various forms, which may either remain in the papular stage, or may develop into pustules, and then break down and disappear gradually. I have a photograph of a positive Noguchi leutin test, which I thought would be of some interest. Noguchi says that it is likely to be positive in the late stages of syphilis and is not unlikely to be positive in early hereditary syphilis.

DR. CHURCHILL, in closing. The work in connection with the Wassermann investigations has been done by men specially trained, Dr. H. K. Nicoll, and Dr. J. F. Waugh. They have done the work purely because of their interest in it.

With regard to the spinal fluid, I should have said that in one of my negative cases, that of a two months' old Mongolian idiot type, the reaction was negative, whereas, as Dr. Lucas states, the blood might have shown a positive reaction. With regard to the subject of breast feeding, I cannot reiterate too strongly the danger of putting any of these infants to the breast of women who are undoubtedly healthy, and also the reverse. It is not necessary to put these infants to the breast, — the milk can be pumped out and fed to the infants, and in this way the risk of a syphilitic baby infecting a well woman can be obviated.

It seems to me that with this serum test we have a weapon which ought to be of value to us in making a more thorough clinical study of this disease, and if this taint is as widespread among our hospital cases as it seems to me to be, I think we ought to get after it and do the work as carefully and exhaustively as possible.

OUR PRESENT KNOWLEDGE OF THE PHYSIOLOGY AND CHEMISTRY OF GASTRIC DIGESTION AS APPLIED TO VOMITING IN INFANCY.*

BY ALEXANDER C. EASTMAN, M. D., SPRINGFIELD, MASS.

DISCUSSION.

DR. MAYNARD LADD, BOSTON: I was interested to note in some bismuth work on the stomach, the number of cases in which there is a residue at the time of the next feeding. I believe from what has been done on normal babies who are digesting their food properly that there is often a residue at the time of the feeding. It can be shown that this residue does not mix with the new food that goes into the stomach, but passes out quickly to the duodenum owing to the influence of the peristalsis which has been excited by the new lot of food. That is, if you give a bismuth feeding and if the feeding interval is 3 hours, if you x-ray the baby's stomach at the end of 3 hours you will find considerable residue. Then if one gives a normal feeding without bismuth one will be surprised to see how much of the residue has passed out into the duodenum and how little has been mixed with the new stomach contents. Whether this residue causes disturbance or not depends on the character of the digestion that has been going on. I have been interested in many things that Dr. Eastman said, especially with regard to the feeding in the atrophic cases. I am convinced that many atrophic babies are underfed, and that is often the primary factor in their condition. In regard to the vomiting of breast-fed babies being due to too high percentages of fat in the breast-milk, I think there is another factor equally important, that is the overdistension of the stomach from excessive nursing. If one takes the pains to weigh babies before and after a breast-feeding in many cases, one will be surprised to note the quantities that little babies will sometimes take from the breast, babies of four or five days sometimes taking as much as 3½ or even 4 ounces, a quantity that one would not think of giving in substitute feeding. Such over-distension is often responsible for the vomiting and might be attributed to excessive fat in the mother's milk.

DR. F. B. TALBOT, BOSTON: I should like to disagree with Dr. Ladd's statement that a young baby in taking three, four or five ounces necessarily overdistends its stomach, because breast-milk contains a high percentage of lactalbumen

* See JOURNAL, p. 215.

which is not digested in the stomach. As I understand it, the breast milk can run right through the stomach into the intestines, and a two-ounce stomach can let four ounces go through it without its being overdistended. There is one other point — I may have misunderstood Dr. Eastman, but I think that sugar and proteins can also cause vomiting when given in excess, and I think sugar even more commonly than too high proteins.

Dr. Eastman, in closing. In connection with what Dr. Ladd said about over-feeding, I purposely left that out because it was necessary to confine the subject in this paper chiefly to the direct indigestion so called, chemical and physiological. The main point is, it seems to me, that in times past we have considered the infant's stomach as distinctly different from the adult's stomach, and I think the thing for us to bear in mind is that it is recognized now that an infant's stomach is the same as the adult's stomach, only on a smaller scale, and should be treated accordingly; thus, many of these cases of indigestion and vomiting should be treated in the same manner as in adults, in other words by examination of the stomach contents. The case that Dr. Talbot spoke of in connection with sugar as the cause of vomiting would come under the head of hyperacidity.

Book Reviews.

A Dictionary of Medical Diagnosis. A Treatise on the Signs and Symptoms Observed in Diseased Conditions. For the use of medical practitioners and students. By Henry Lawrence McKisack, M.D., M.R.C.P., London, Physician to the Royal Victoria Hospital, Belfast. Second edition, pp. 590. New York: William Wood and Company. 1192.

This volume, while entitled a Dictionary and arranged with symptoms and signs described in alphabetical order, is also a text-book of symptomatology and of physical and laboratory diagnosis. The scope of the work is illustrated by the fact that the first heading, Abdomen, occupies nineteen pages and includes description of topography, methods of examination, variations of size and shape from various causes, and physical signs of diseases and tumors of all organs. Following this Acholia, Adventitious Sounds, Aegophany, Aerophagia, etc., are given brief paragraphs up to Anemia, which with its characteristics, types and causes covers eight pages. The definitions and descriptions are well stated, and the comments as to the occurrence and diagnostic significance of the symptoms and signs mentioned are extremely helpful. The work can be highly recommended both for consecutive study and for daily reference.

A Surgical Treatment of Locomotor Ataxia. By L. N. Denslow, M.D. Crown 8vo. pp. x, 118. London: Baillière, Tindall and Cox. 1912.

The writer argues that the exciting cause of tabes is often a peripheral irritation in the urethra, which exhausts the sensory neurones and produces changes in the posterior spinal roots and spinal columns, and that treatment of this urethral irritation will often relieve the tabetic symptoms. This hypothesis was brought forward in New York a few years ago, where it received a somewhat inconsiderate endorsement from one or two neurologists, enjoyed a certain vogue for a few months, and then was heard of no more. The author has since gone to Paris, where he has treated various cases by this method, and now publishes his views again with the support of these new cases. These cases show a considerable improvement in their subjective symptoms, which is very often seen in tabes after any new form of treatment, but nothing is said which shows the total number of cases treated or the percentage of cases benefited, nor, in any case, is there any record of the objective symptoms after treatment. The hypothesis itself, based on the old notion of reflex irritation, long questioned by the neurologist, has little in its favor, not even when the author exhumes Sayre's operation of circumcision for spastic paraplegia as an argument in its support. It flourished for a brief season in New York, but its resurrection now must be a surprise, even to the few neurologists who today repent of their former approval.

Text-Book of Ophthamology. By Paul Roemer, Professor at Greifswald. Translated by Dr. M. L. Foster. New York: Rebman & Co.

This text-book is in the form of clinical lectures and is intended for students. The author presents the needful anatomical and physiological knowledge at the beginning of each chapter, and then describes and discusses cases illustrating pathological conditions. This "case" method of presenting the subject is greatly aided by the 186 illustrations and the thirteen well executed colored plates. Although the ground of clinical ophthalmology is systematically covered, yet the lectures read like the face to face talk of a master of his subject to his pupils; and the translator has preserved the spontaneous enthusiasm of Roemer which makes the book so interesting and so easily retained in the memory.

The large pages, lying open flat before one, dull surfaced paper, and clear print combine with the attractive handling of the subject to make the reading of this book a pleasure, and even experts will not find its perusal a waste of time.

Transactions of the Thirty-third Annual Meeting of the American Laryngological Association. Published by the Association. 1911.

This volume contains thirty-one papers on different laryngological subjects with their discussions at the meeting. It adds several good articles to the long list collected during the last third of a century.

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CO-OPERATION IN THE TREATMENT OF TUBERCULOSIS.

AN unfortunate disagreement has developed recently in Boston with regard to the local and state treatment of consumptive patients from this city. The facts in the case appear to be as follows:

A few years ago the Massachusetts legislature passed an act providing that every community in the commonwealth shall pay $4 a week for the care of each consumptive patient whom it sends to one of the state sanatoria. Conversely, to encourage the construction of local hospitals for tuberculosis, it was provided by a legislative act last year that the state shall subsidize such institutions at the rate of $5 a week for each patient therein maintained. It now appears that for the past three years, the city of Boston has made no payment for its patients in the state sanatoria; and when the state entered suit for $33,000, the present amount of the bills due, the Boston Consumptive Hospital Trustees ceased to recommend tuberculous patients from Boston to the state institutions. As a result, not only the advanced but the incipient cases of phthisis in Boston are being referred to local hospitals, which are not adequate to care for them.

There are in Boston at present some 2500 consumptives. The Boston Consumptive Hospital at Mattapan has only 250 beds and is overcrowded. In the state sanatoria are numerous empty beds. Moreover, the climate of Boston is obviously unsuited for incipient cases in which there is a reasonable prospect of arrest or cure of the disease. It is the wise policy of the trustees of the Massachusetts hospitals for consumptives that such cases should be sent to the more favorable environment of a state sanatorium, particularly that at Rutland; while the advanced cases, for whom there is little hope of recovery, but who might be made more comfortable and prevented from being a menace to the community, should be segregated at local institutions. By the action of Boston officials this policy has been thwarted. The resulting injustice to patients and to the community is manifest.

Meantime, following the disagreement between the state and city authorities over the payment for Boston patients sent to the state sanatoria, the city of Boston has served notice that it will not be responsible for such payment except for patients certified by the trustees of the Boston Consumptives' Hospital. It has always been the custom of the state hospital trustees to accept patients referred to them directly by practising physicians without passing through the cognizance of the city. It was on account of these cases that the disagreement arose. The state trustees contend that any citizen has a right to be referred directly by his physician to the state sanatoria. The Boston officials insist that every case must pass their scrutiny and are now sending to these institutions only such patients as can afford to pay for themselves. This would make it appear that the pecuniary motive has been given undue prominence as contrasted with the welfare of the patients.

The question of financial responsibility and obligation is apparently one for the courts to settle. In the matter of policy, however, it seems that the state trustees are in the right, both as regards the distribution of incipient and advanced cases, and as regards the right of practising physicians to refer cases directly to the state sanatoria. Patients who can pay can get into these institutions without difficulty anyway. The disadvantage of referring those who cannot pay to the city out-patient headquarters at Burroughs Place is that they will either be sent to a local hospital, or, if referred to a state sanatorium, must first be declared and rated as paupers. This, too, seems to the state trustees an injustice, and until the satisfactory settlement of the present disagreement they will continue as heretofore to receive cases directly upon the recommendation of practising physicians. Physicians therefore should realize that they still retain this privilege, and that they may still refer their poor but deserving patients directly to a state sanatorium, without compelling them to be pauperized by political municipal administration.

The above incident is but one of several evidences that have arisen lately of failure of wholesome co-operation between state and local authorities in dealing with the problems of tuberculosis. Another example may be found in a report by Dr. William Hall Coon, in the monthly bulletin of the Massachusetts State Board of Health for June, on the assistance given by local boards of health to consumptive patients released from state sanatoria. Dr. Coon investigated the subsequent history of 80 persons discharged from state sanatoria during the period from July 19, 1910, to March 14, 1912, to return to one of our larger cities (not Boston). Of these cases, 49 had been discharged as apparently cured, arrested, or improved. Yet of these 49, after less than two years in the longest instance, five on investigation were found to be dead, and 19 to have an active tubercular process. Nearly one-half of the patients most benefited by state sanatorium treatment, therefore, had suffered serious or fatal relapse after returning to their home community. How far this is the responsibility of local boards of health is of course a question.

"In the greater number of cases investigated it was found that no aid or assistance had been given by the local board of health, and that no inquiry relative to the home conditions surrounding any patient had been made by said board. It appeared to be the custom of the local board of health not to offer aid or assistance to any patient, or to advise or to make inquiry concerning any patient except on request. In any event no patient was aided by the local board of health unless it was first proved that tubercle bacilli could be found in the sputum."

Whatever may prove to be the merits in such cases, these data seem to indicate discouraging evidences of incoördination between state and local authorities. The problems of dealing with tuberculosis are perplexing enough if attacked by all in a cordial spirit of coöperation. The reëstablishment of such a spirit is now the most urgent desideratum in advancing the work against tuberculosis in Massachusetts.

PEPYS AND THE ROYAL SOCIETY.

The recent celebration of the two hundred and fiftieth anniversary of the Royal Society, in England, to whose early history we made reference in the issue of the JOURNAL for Aug. 1 (vol. clxvii, p. 179), recalls some interesting memorabilia of Samuel Pepys, the celebrated diarist, an early member of the Society and its president from 1684 to 1686. Pepys gives considerable account of its foundation and of his experience at its meetings. He was elected a Fellow on Feb. 15, 1665, though for what scientific qualifications does not precisely appear. Indeed, like Boswell, he was a man whose greatness consisted chiefly in the minute fidelity with which he recorded the life of his times and the doings of those greater than himself.

Apparently Pepys was particularly interested in the medical proceedings of the Royal Society. In the issue of the *British Medical Journal* for July 27 are quoted a number of references in his diary to medical topics. Experiments in blood transfusion attracted much attention at that time. Under date of Nov. 14, 1666, Pepys records:

"At the meeting at Gresham College tonight, which it seems they now have every Wednesday again, there was a pretty experiment of the blood of one dogg let out, till he died, into the body of another on one side, while all his own run out on the other side. . . The first died upon the place, and the other very well and likely to do well. This did give occasion to many pretty wishes, as of the blood of a Quaker to be let into an Archbishop, and such like; but, as Dr. Croone says, may if it takes, be of mighty use to a man's health, for the amending of bad blood by borrowing from a better body."

On November 16th there is the following entry:

"This noon I met with Mr. Hooke, and he tells me the dog which was filled with another dog's blood, at the College the other day is very well, and like to be so as ever, and doubts not its being found of great use to men; and so do Dr. Whistler, who dined with us at the taverne."

Again, on November 28th:

"Mr. Cartaret and I to Gresham College, where they meet now weekly again, and here they had good discourse how this late experiment of the dog, which is in perfect good health, may be improved for good uses to men."

It was not long before these early animal experiments were extended to man, in the effort to make them of practical application. On Nov. 21, 1667, Pepys writes in his diary of

"A man that is a little frantic, that hath been a kind of minister, Dr. Wilkins saying he hath read for him in his church, that is poor and a debauched man, that the College (Gresham) have hired for 20s. to have some of the blood of a sheep let into his body, and it is to be done on Saturday next. They purpose to let in about twelve ounces; which, they compute, is what will be let in in a minute's times by a watch. They differ in the opinion they have of the effects of it; some think it may have a good effect upon him as a frantic man by cooling his blood,

others that it will not have any effect at all. But the man is a healthy man, and by this means will be able to give an account what alteration, if any, he do find in himself, and so may be useful."

This man was Mr. Arthur Coga, an indigent bachelor of divinity, "a very freakish and extravagant man." The experiment was performed on Nov. 23, 1667, by Dr. King at Arundel House, in the presence of several physicians. Pepys was apparently not present, but under date of Nov. 30 he refers to the episode and to the subsequent history of the case, which he learned from an associate at the tavern whither all had adjourned after a meeting and election of officers.

"But here above all I was pleased to see the person who had his blood taken out. He speaks well and did this day give the Society a relation thereof in Latin saying that he finds himself much better since and as a new man but he is cracked a little in his head though he speaks very reasonable and very well. He had but 20s. for his suffering it and is to have the same again tried upon him; the first sound man that ever had it tried on him in England and but one that we hear of in France which was a porter hired by the virtuosos."

In spite of these early experiments, it has remained for the genius of our own generation to make direct human blood transfusion a practical possibility.

In contradistinction from this very modern medical topic, was the medieval one of poisons which naturally concerned the Royal Society in an age not so far removed from the Borgias as is our own. One of the popular and supposedly terrible poisons of the time was Macassar powder. Evidently this was not so toxic as it was reported, for on March 15, 1665, Pepys records that he attended a meeting of the Royal Society at Gresham College, "where, among other good discourse, there was tried the great poyson of Maccassa upon a dogg, but it had no effect all the time we sat there."

Again on April 19, 1665,

"We to Gresham College, where we saw some experiments upon a hen, a dogg, and a cat, of the Florence poyson. The first it made for a time drunk, but it come to itself again quickly; the second it made vomit mightily, but no other hurt. The third I did not stay to see the effect of it, being taken out by Povy."

Again on May 3, 1665,

"And so out to Gresham College, and saw a cat killed with the Duke of Florence's poyson, and saw it proved that the oyle of tobacco drawn by one of the Society do the same effect, and is judged to be the same thing with the poyson both in colour and smell and effect."

Of this "oyle of tobacco" and its deadly effect on the cat there is further mention in Birch's "History of the Royal Society":

"Mr. Daniel Coxe read an account of the effects of tobacco-oil distilled in a retort by one drop of which given at the mouth, he had killed a lusty cat, which being opened, smelled strongly of the oil, and the blood of the heart more strongly than the rest. . . One drop of the Florentine *oglio di tobacco* being again given to a dog, it proved stupefying and vomitive, as before."

Not a few modern inventions were foreshadowed in these meetings of the Royal Society, notably that of the telephone. There was an instrument called the autacousticon, with which they experimented, and which Pepys describes as follows, under date of April 2, 1668:

"Here to my great content I did try the use of the Otacousticon which was only a great glass bottle broke at the bottom, putting the neck to my eare and there I did plainly hear the dashing of the oares of the boats in the Thames to the Arundell Gallery window which without it I could not in the least do and may I believe be improved to a great height which I am mighty glad of."

There is something dramatically human and inspiring in the picture of these early English scientists gathered sociably for the common pursuit of their inquiries into natural phenomena, in an age when the experimental method was but newly born. Nowadays scientific investigation is oftenest pursued in the solitude of the laboratory; then it was a matter of the closest personal association. On the threshold of the new science, its devotees were not yet ready to trust their steps alone, and in their fellowship was an element that is sometimes lacking in the confidence of today. It is not the least of our debts to Mr. Pepys that he has preserved for us these vivid first-hand sketches of the doings and personalities of the members of the Royal Society.

DECREASE OF MORTALITY FROM MINING ACCIDENTS.

Americans have been proverbially "careless of the single life," particularly in the matter of preventable trauma, and in pursuits requiring reckless daring. Perhaps this is in some degree to our national credit, but not when it involves habitual risk to large numbers in pursuit of their daily occupations. It is well enough that we should have the second largest number of

fatalities from aviation, (France leading the list with 70 out of the 175 deaths from aviation up to July 5, 1912); but our death-rate from railroad and mine accidents is not creditable, and would be regarded as shameful in any other civilized country.

Happily, it seems that we are beginning to appreciate our short-comings in this respect, and to take positive steps towards their correction. The diminution in the number of Fourth-of-July accidents is one evidence of returning sanity and care, and another is the recent improvement in the mortality statistics from mining. The miner's existence is at best precarious and exposed to unusual peril. Serious efforts for his protection from the more preventable risks began in 1907, when Congress authorized the government to begin investigations looking towards a reduction in the death-rate from this cause. In that year the total number of deaths from mining accidents was 3197. In 1908, it was 2449, and in 1909, 2668. All of these correspond to a rate of approximately four in every thousand men employed.

In 1910 the United States Bureau of Mining was established, and continued the investigation begun by the special commission, and the work of developing contrivances for the avoidance of accidents to miners. In 1910, the total number of deaths from such accidents, however, rose to 2834; but in 1911 dropped again to 2517, corresponding to a rate of 3.74 per thousand men employed.

These figures show an improvement, but an improvement that should steadily continue. Doubtless there will be always an irreducible minimum of unpreventable trauma, beyond which the fatality rate cannot be reduced. That constitutes the *risque professionel* of the miner, which it is his right to have diminished as far as possible. In a recent discussion, Dr. Joseph A. Holmes, director of the Bureau of Mining is reported to have said:

"The Bureau is coöperating with the State Mine Inspectors, the mine workers and with the mine operators in an endeavor to solve many of the difficult problems connected with the coal mining industry in this country. In this effort all the above forces are coöperating in good spirit in the determination to bring about better conditions. In this coöperative effort there is also serious need of the statesman. No branch of industry in this country is on so bad an economic basis today as is the coal mining industry, and this industry can never be placed on a satisfactory basis until, through important legislative changes, improvement in this economic basis is made possible."

Next to miners, sailors, and engineers, physicians are said to have the highest proportional death-rate. It should be our interest to promote the reduction of death-rate in these occupations more dangerous than our own, just as it is our concern to diminish the mortality from preventable infectious disease.

MEDICAL NOTES.

Harriman Meningitis Clinic in China.—Report from Vienna on Aug. 4 announces the recent opening in that city of a clinic, under the direction of Dr. Berthold Beer, for the special study of cerebro-spinal meningitis. This clinic was founded and endowed as a memorial to the late Mr. E. H. Harriman.

Asiatic Cholera in Russia.—Report from St. Petersburg on Aug. 9 states that Asiatic cholera is at present epidemic in that city, but the number of cases of the disease is not given. On July 29, two cases and one death of cholera were reported from Vitebsk, Russia.

Poliomyelitis in California.—Report from San Francisco, on July 30, states that acute poliomyelitis is at present epidemic at Los Angeles, Cal. It is said that from June 1 to July 29 there had been 150 cases of the disease in that city.

Bubonic Plague in Liverpool.—Report from Liverpool, England, states that a case of bubonic plague was discovered in that city on Aug. 5. The patient was immediately quarantined and every precaution was taken to prevent further spread of the infection. As a result of this intelligence orders have been issued by the Boston Board of Health to fumigate all vessels arriving at this port from Liverpool. No new cases of bubonic plague have been reported from Porto Rico or Cuba during the past week.

Asiatic Cholera in Turkey.—Report from Constantinople on July 27 states that the annual epidemic of Asiatic cholera is now in progress in Turkey. Two dispensaries especially for the treatment of this disease have been opened, one at Scutari and one at Fatih. A hospital for the same purpose is also under construction at Duerah-Pasha. At Aleppo the authorities have prohibited the use of water from two suspected sources.

"Not only in Aleppo, but in many other cities also, as well as in the metropolis itself, the

sanitary authorities have to contend against the superstitious ignorance of the populace, who believe that nothing should be done to combat illness, for it is sent by Allah and must be borne patiently and submissively. Cholera, also, they believe to be God-sent, and its spread to be occasioned by the sacrilegious efforts for preventions and cure."

HONORARY DEGREE FOR MR. LEITZ.—The University of Giessen, Germany, has recently conferred the honorary degree of M. D. on Mr. Ernest Leitz, Jr., for his contributions to the advancement of microscopy and the construction of optical instruments.

FOUNDATION OF THE HOWARD T. RICKETTS PRIZE.—It is announced that the widow of Dr. Howard T. Ricketts, who died in Mexico in 1910 of typhus fever, while engaged in the scientific investigation of that disease, has given to the University of Chicago, where her husband was assistant professor of pathology, the sum of $5000 to found in his memory a scholarship to be awarded annually for the best piece of research presented by any student in the department of pathology and bacteriology.

AWARD OF THE SCHAUDINN MEDAL.—It is announced that the Schaudinn Medal has been recently awarded to Dr. Chagas, of the Oswaldo Cruz Institute, Rio de Janeiro, for his discovery of the trypanosome which is the etiologic agent of epidemic thyroiditis.

FOUNDATION OF THE MAGRATH CLINICAL SCHOLARSHIP.—It is announced that the sum of £3000 has been given to the University of Belfast, Ireland, to establish the Magrath Clinical Scholarship to be awarded to a fourth-year medical student for proficiency in making case-reports.

AMERICAN DELEGATES TO THE ROYAL SOCIETY ANNIVERSARY.—At the recent celebration of the two hundred and fiftieth anniversary of the foundation of the Royal Society, in England, noted in the issue of the JOURNAL for Aug. 1, (Vol. CLXVII, p. 179), the address in behalf of the United States was made by Professor W. B. Scott, vice-president of the American Philosophical Society, Philadelphia. Among the 200 delegates present, the following were the representatives from some American institutions and societies of learning:—

University of California, Professor H. C. Plummer; University of Chicago, Professor E. B. Frost; Clark University, Worcester, Professor A. G. Webster; Columbia University, New York, Dr. N. M. Butler (president); Cornell University, Ithaca, N. Y., Professor J. H. Comstock; Harvard University, Professor B. O. Pierce; Johns Hopkins University, Baltimore, Professor W. B. Clark; Leland Standford Junior University, California, Professor V. L. Kellogg; University of Michigan, Professor W. H. Hobbs; University of Minnesota, Minneapolis, Dr. A. Hamilton; University of Pennsylvania, Philadelphia, Dr. E. F. Smith (provost); Princeton University, New Jersey, Professor J. G. Hibben (president); University of Wisconsin, Professor C. K. Leith; Yale University, Dr. A. T. Hadley (president); American Academy of Sciences, Boston, Professor E. H. Hall; Connecticut Academy of Arts and Sciences, Professor E. W. Brown, F. R. S.; American Mathematical Society, New York, Professor H. B. Fine (president).

GIFT OF A PHYSIOLOGIC LABORATORY.—Report from England announces that an anonymous donor has given 10,000 guineas for the erection of a new physiologic laboratory for the medical faculty of the University College of South Wales and Monmouthshire.

BOSTON AND NEW ENGLAND.

FINES FOR SALE OF INFERIOR MILK.—Before the Boston municipal court last week, four local dealers were found guilty of having in their possession for sale milk below the standard required by law, and were fined an aggregate of $90 therefor.

APPOINTMENT OF DR. MUMFORD.—Dr. James Gregory Mumford, of Boston, has been appointed physician-in-chief to the Clifton Sanatorium and Hospital, Clifton Springs, New York. Dr. Mumford will enter upon his duties on October first, and will be followed to his new activities by the kind wishes of his many warm personal friends and associates in this city.

EXPOSURE OF FOOD-STUFFS IN PORTLAND.—Report from Portland, Me., states that Mr. Charles D. Woods, of Orono, Me., director of the Maine agricultural experiment station, has initiated an attempt to secure enforcement of the existing laws in Portland to prevent exposure of fruits, meat, and other articles in such manner that they may become contaminated by flies and dust.

A CENTENARIAN.—Mrs. Isaac Rockwell, who died at Hyde Park, Mass., on Aug. 6, is said to have been born on Dec. 7, 1806, in Vermont. In her youth she was a nurse, and indeed followed that profession for over fifty years of her life.

Her health continued excellent until the age of 105. She had been for some years a widow. She is survived by one daughter.

Two Living Centenarians. — Mrs. Paul O'Neill, of South Middleton, Mass., who is said to have been born on Aug. 9, 1812, in Ireland, celebrated last week her supposed centennial anniversary. She came to the United States in 1843, and settled first at Warren, Mass., later in East Boston. Her health is said to be still excellent. She has been a widow since 1900. She has three surviving daughters and one son.

Mrs. Almira A. Rowell, of Brookline, Mass., who is said to have been born on Aug. 5, 1811, in St. Johnsbury, Vt., celebrated last week her supposed one hundred and first anniversary. Her health is excellent. She was for many years a school-teacher, and marrying late in life has been childless. She has been a widow since 1901.

Recent Bequests in Medical Charity.— The will of the late Lydia L. Morton, of Quincy, Mass., which was filed for probate last week at the Norfolk County Probate Court, Dedham, Mass., contains bequests of $1000 each to the Quincy Visiting Nurse Fund and to the Society for the Prevention and Cure of Tuberculosis.

The will of the late John T. Siders, of Dorchester, Mass., who died on July 27, was filed last week at the Suffolk County Registry of Probate. The Massachusetts Homeopathic Hospital is named as a residuary legatee, and will probably receive a sum sufficient for the endowment of a free bed.

Ninth International Otological Congress.—The Ninth International Otological Congress, of which we gave editorial notice in last week's issue of the Journal, is in progress this week in Boston. It was opened at 3 P. M. on Monday, Aug. 12, by Professor Kornel von Lichtenberg, of Budapest, Hungary, and the address of welcome was made by Dr. Edward H. Bradford, dean of the Harvard Medical School.

"In connection with the scientific program of the congress, a microscopic exhibition showing the normal histology and embryology of the ear, as well as the pathological changes in this organ, is being held in the medical school building. Other exhibits are in microscopic and radiographic, showing various conditions of the ear.

"A particularly interesting exhibition will be the demonstration of the methods employed and the apparatus used in the education and amelioration of the condition of the deaf."

NEW YORK.

Poliomyelitis in Buffalo. — On August 7, it was reported by the State Department of Health that since July 1, 86 cases of poliomyelitis had developed in the city of Buffalo. While six of these have terminated fatally, many of the cases are of a mild character. The disease varies markedly in its intensity, and no two cases have occurred in the same family. In dealing with the outbreak the department has secured the expert services of Dr. Wade H. Frost, assistant surgeon in the United States Public Health and Marine Hospital Service, who has been detailed for the purpose by Surgeon General Rupert Blue.

Recent Hospital Bequests. — Among the bequests in the will of the late John S. Lyle, who was connected with the firm of Lord & Taylor, of New York, in which $450,000 is left to religious and charitable objects, are $50,000 to the Presbyterian Hospital, and $25,000 each to the New York Eye and Ear Infirmary, the Children's Aid Society, the New York Association for Improving the Condition of the Poor, the Charity Organization Society, and the State Charities Aid Association.

Miscellany.

HISTORY OF MEDICINE IN JAPAN.

The issue of the British Medical Journal for July 27, 1912, contains on page 185 the following note on Japanese medical history, in comment on the "Short History of Japan," by Y. Fujikawa, recently published in German at Tokyo, under the auspices of the Japanese minister of instruction.

"The work deals with periods beginning with mythical times up to 96 B. C. The invention of the healing of diseases is attributed to two deities, Onamuji-no-Mi-Koto and Sukunabikona-no-Mikoto. Disease is caused by divine action, the particular god responsible being Kamino-no-Ke (spirit of the gods); or by devils, evil spirits, or by the spirit of a dead man. Morality and neglect, however, were also held to be etiological factors. Sacrifices, prayers, and incantations were used to counteract hostile influence. Later internal medicines were employed. Wounds were dressed by the application of powders and juices. Bleeding was employed and great use was made of mineral baths and douches. Between 96 B. C. and 709 A. D. Chinese medicine was introduced by way of Korea. Priest healers appeared and

taught their art. Pupils were sent to China at the cost of the State to learn medicine. The Code of the Emperor Mommu (702 A. D.) shows that there were then a superior school of medicine, accessible to families from the fifth class upwards, and provincial schools. The course of internal medicine occupied seven years, the other branches shorter periods. A final examination had to be passed in presence of the Minister; successful candidates became ishi or doctors. A few women from 15 to 25 years of age were trained as midwives and surgeons. Then came a period known as "Nara," from the name of the city which was then the capital, and extending from 710 to 784. During that period the priest healer played a large part. A hospital for the sick poor was founded by the Empress Komyo in 758. The Heian period during which Heian (now Kyoto) was the capital, extended from 784 to 1186. Chinese influence predominated. The oldest Japanese medical treatise is the *Ishinho*, written by Yasuhori-Tamba in 892; it is still extant. In it are described various surgical procedures, such as the opening of abscesses with the knife, the application of the actual cautery to ulcers, and the stitching of wounds of the intestine with threads made of the fibre of the mulberry tree. Inflammations were treated by the application of leeches, cold stones or iron, or white of egg. There is record of an operation for atresia of the vagina. Cataract was needled. In the Kamakura period (1187-1333) medicine gained a more important position, and personal observations were recorded. The Muromachi period (1334-1568) was marked by the destruction of buildings, books, and works of art. Nevertheless, some twenty Japanese treatises on medicine are ascribed to this period. In the Azuchi-Momoyana period (1569-1615) we hear of disorders of nutrition, nervous influences and over-pressure as causes of disease. The first Portuguese ship reached Japan in 1542. In 1549 arrived the famous missionary St. Francis Xavier who brought with him a European doctor, Luis Almeida; he treated the sick gratuitously. From him a Japanese named Pohl learnt something of European medicine. In 1568, after the building of a Catholic Church at Kyoto several missionaries were sent to Japan by Portugal; with them went two physicians who founded hospitals, treated patients, operated and planted physic gardens. When they were expelled with the missionaries in 1585 two Japanese pupils of the European physicians, Zangoro and Yaseumon, settled all Sakai and practised European medicine. They founded a school, the pupils of which spread abroad the doctrines of the European teachers. In 1597 the Dutch obtained permission to trade with Japan. Some doctors were sent to promote trade under pretext of medical visits. The first physician of the Dutch Company was a German named Caspar Schambergen, who landed in Japan in 1649. He had some pupils, and his school played an important part in Japan. Others followed, and interpreters who had learnt European medicine practised as doctors. Among them may be mentioned Eykin Narabayashi (1643-1711), author of a Japanese translation of the works of Ambroise Paré For a long time the prohibition to import European books hindered the progress of medicine; this prohibition was withdrawn in 1700 and translations of a number of Dutch, French, and German books (Heister, van Swieten, Boerhaave, Hufeland, Richerand, etc.), were translated. Mohmike introduced vaccination in 1848. Seishu Hanoaka (1760-1833) was the first in Japan who extirpated tumours, amputated limbs, operated for cancer of the tongue and fistula of the anus. Before operating he administered a narcotic potion, which was an infusion of five plants, including datura and aconite. In 1857 some Dutch physicians founded a medical school at Yedo, the direction of which was taken over by the Government in 1860. This was the origin of the University of Tokyo. The present period, which goes by the name of Meji, began in 1868. The English doctor Willis, who had played a part in the revolution of 1868, was appointed Professor of Medicine in the Academy of Yedo and Director of the Hospital. Afterwards several professors were invited from Germany. The modern development of scientific medicine in Japan is too well known to require repetition."

That development has been one of the most phenomenal events in the recent history of this remarkable oriental country, and it should be added that in it American physicians and ideas have also played no inconsiderable part.

BIRTH OF QUADRUPLETS.

An apparently authentic case of quadruplets was reported last week from Dorchester, Mass. On Aug. 5 Mrs. F. H. Seely, of that town, gave birth, within a period of twenty minutes, to four successive living female infants, weighing respectively 4¼, 3½, 3½, and 4½ pounds. The character and weight of the placenta are not stated, but assuming the latter as 1¼ pounds, the total weight of uterine contents would have been 17 pounds. At the latest accounts the babies are all alive and doing well. It is not stated whether or no this is the patient's first pregnancy, or what is her obstetric family history. A full medical account of this unusual case will be awaited with interest.

Current Literature.

MEDICAL RECORD.

AUGUST 3, 1912.

1. LORENZ, W. F. *The Effect of Specific Treatment on the Cerebrospinal Fluid.*
2. DUSBACH, M. *Examinations of the Eyes of College Students.*
3. BACHMANN, R. A. *The Problem of Venereal Prophylaxis.*

4. Beatty, G. W. *Rectal Administration of the Solicylatis in the Influenza of Infancy.*
5. Sheldon, W. H. *The Modern Medical Clinic, Its Purpose and Its Requirements.*
6. Lapham, M. E. *The Physical Signs of Pulmonary Tuberculosis Caused by Nasal Stenosis.*
7. Fauntleroy, A. M. *The Ice Bag and Appendicitis.*

New York Medical Journal.
August 3, 1912.

1. Blackader, A. D. *The Advantage of a Cold Dry Climate in the Treatment of Some Forms of Disease.*
2. Flint, A. *Sexual Crimes.*
3. Kosmak, G. W. *Eclampsia.*
4. Moran, T. J. *Modern Ocular Surgery.*
5. Wood, E. J. *"Pellagra sine Pellagra."*
6. Boggs, R. H. *Epithelioma.*
7. *Rohdenburg, G. L., and Bullock, F. D. *Notes on Tumor Genesis.*
8. Hansell, H. F. *A Case of Edema of the Orbits, Secondary to Facial Dermatitis.*
9. Wakefield, H. *The Tissue Density Factor.* (Concluded.)
10. Schumann, E. A. *The Relation of Pelvic Disease in Women to Mental Disturbances.*

7. Rohdenburg and Bullock present experimental data in support of their hypothesis of tumor genesis, which may be formulated as follows: Tumor formation, whether benign or malignant, starts as a localized process at some focus of healing which is usually microscopic, and may follow either physiological process or be due to extrinsic causes. Either because of the mode of cell death or for some other reason the products of nucleo-protein hydrolysis are not removed by the phagocytic action of the leucocytes. The continued application of such stimuli causes either benign or malignant new growths, depending probably on the amount and continuation of the stimulus, while the type of tumor depends upon the type of cell involved. Such an hypothesis as this would explain the many puzzling features of tumor formation, *e.g.* autonomous growth, changes from benign to malignant tumors, changes in tumor types, age, sex and tissue incidence, and at the same time would correlate the widely divergent findings in tumor biology.

[L. D. C.]

The Journal of the American Medical Association.
August 3, 1912.

1. *MacCallum, W. S. *The Function of the Parathyroid Glands.*
2. *Pratt, J. H. *The Internal Function of the Pancreas.*
3. *Marine, D. *The Anatomic and Physiologic Effects of Iodin on the Thyroid Gland of Exophthalmic Goitre.*
4. *Chase, I. C. *Newer Methods of Diagnosis of Pathologic Conditions of the Liver.*
5. *Barnes, H. L. *Report of 150 Cases of Pulmonary Tuberculosis Treated with Tuberculin.*
6. *Rovsing, T. *Gastrocoloptosis, Its Pathologic Significance and Its Surgical Treatment.*
7. Mackenzie, A. J. *The Rôle of the Movable Kidney in Intestinal and Vascular Stosis.*
8. Weiss, L. *Parakeratosis Ostracea (Scutularis).*
9. Bartlett, W. *Further Experimental and Clinical Work Bearing on the Value of Lane Bone-Plates.*
10. Darrach, W. *Operative Treatment of Fracture and Dislocations.*
11. Reed, C. A. L. *Constipation and Headache in Women; A Study in Etiology and Diagnosis.*
12. Talbot, E. S. *Iodoglycerole in Mouth Infections.*
13. Loeb, V. *A Study of the Cubic Capacity and Superficial Area of the Maxillary Sinus.*
14. Rhein, M. L. *Infected Areas Around the Ends of Roots of Teeth.*
15. Coleman, W. *Five Years' Experience with the High-Calory Diet in Typhoid.*
16. Clark, P. F. *The Action of Subdural Injections of Epinephrin in Experimental Poliomyelitis.*
17. Fowler, M. A. *A Rare Finding in a Suspected Case of Pulmonary Tuberculosis.*
18. Wilkinson, O. *A New Tonsil Forceps.*

1. MacCallum believes that the parathyroids, embryologically, histologically and in these functions are entirely distinct from any other organ of the body. Their injury or extirpation causes a hyperexcitability, which is purely a nervous phenomenon. On the whole, the idea that the symptoms of tetany are produced by the withdrawal of calcium from the cells, leaving them hyperexcitable, forms a plausible working hypothesis. Soluble calcium salts will stop the symptoms of tetany after parathyroidectomy very promptly if injected intravenously, and even if given by mouth in large doses. It does not even the condition, however, but may allow crushed or injured parathyroids to recover their functions and to hypertrophy if given in their first operation period.

2. Pratt cites numerous feeding and metabolising experiments which strongly indicate, but do not prove, that the pancreas has an internal secretion, sometimes even correlated with the sexual organs.

3. Marine finds that neither specific or constant anatomic changes in the thyroid of exophthalmic goitre have as yet been demonstrated. The iodin content, the storage of iodin in the gland, and the involution of active hyperplasia by the use of iodin are, so far as it is at present known, identical with those iodin solutions common to other clinical associations. The thyroid of exophthalmic goitre has no different pharmacologic action on animals or therapeutic action on myxedema or toxic action on patients with exophthalmic goitre than thyroid preparations of other clinical associations with like iodin contents.

4. Chase believes that the urobilinogen test is a very delicate test for impaired liver function. Any localized diseased cells will let pathologic amounts of urobilinogen pass to the urine. The galactose test on the other hand is a general functional test. Galactose is not passed in localized hepatic diseases when the remaining part of the liver has good compensating function. In the various forms of cirrhosis the galactose test is uniformly positive, being strongest in alcoholic cirrhosis. The great value of these tests (as shown by the tables) lies in the conclusions which can be drawn from their combined use. The urobilinogen test, the author believes, will undoubtedly be taken up by insurance companies.

5. Barnes' analysing the results of 150 cases treated with tuberculin, fails to find any evidence that these 150 cases, taken as a whole, were influenced by tuberculin treatment.

6. Rovsing believes that too tight corsets and lacing in women who have not lost the elasticity of their abdominal walls through child-bearing, is the cause of the folding of the stomach and colon, in a narrowed abdominal cavity, and that bends, angles, restriction of circulation and interference with innervation result.

[E. H. R.]

Journal of Medical Research.
July, 1912.

1. Karsner and Pearce. *The Antibodies Produced by Various Constituents of Dog's Bile.*
2. Kolmer. *A Comparative Study of Antibodies.*
3. Henrici. *Primary Cancer of the Lung.*
4. *Milne and Peters. *Atrophy of the Pancreas after Occlusion of the Pancreatic Duct.*
5. *Milne and Peters. *Observations of the Glycolytic Power of the Blood and Tissues in Normal and Diabetic Conditions.*
6. Fabyan. *A Contribution to the Pathogenesis of B. Abortus-Bang.*
7. *Page. *Bacterium Ozaenae (Abel); Fermentation Reactions with Eleven Sugars. Differential Diagnosis and Use as a Vaccine for Treatment.*

8. GRAHAM. *A Case of Ovarian Pregnancy.*
9. ABBOTT. *On Induced Variation in Bacterial Functions. An Experimental Study.*
10. HAYTHORNE. *On the Metaplasia of Bronchial Epithelium.*
11. WESTON AND KENT. *Determination of the Cholesteral Content of Human Serum by the Calorimetric Method.*

4. The authors find marked atrophy of the parenchyma of the pancreatic gland following occlusion of the duct. This is evidenced as much in the Islands of Langerhans as in the acini. After several months the entire gland is found to be replaced by dense fibrous tissue.

5. Normal dog serum shows no glycolytic action. The blood corpuscles are found, however, to possess high powers of absorbing glucose. Perfusion of sugar solutions through muscle and liver shows a high degree of sugar absorption in the normal and the depancreatized animal. This power is often greater in those animals deprived of the pancreatic gland.

7. Page describes the sugar reactions peculiar to the bacterium ozænæ, by means of which it can be definitely separated from the bacillus of Friedlander. A simple and effective technique for fermentation tests is described. [L. H. S.]

ARCHIVES OF INTERNAL MEDICINE.

JULY, 1912.

1. *HERRICK, J. B. *Report of a Case of Diabetes Insipidus with Marked Reduction in the Amount of Urine Following Lumbar Puncture.*
2. STONE, W. J., AND SCHOTTSTAEDT, R. *The Cobra Venom Hemolysis Test in Syphilis, with Report of One Hundred and Thirty Reactions.*
3. *FARR, C. B., AND WELKER, W. H. *The Influence of Theophyllin on Nitrogenous Excretion and Partition.*
4. *MYERSON, A. *Preliminary Paper on Some Unfamiliar and Some New Periosteal Reflexes.*
5. HESS, A. F. *A Consideration of the Pancreas and Its Ducts in Congenital Obliteration of the Bile-Ducts.*
6. *SEWALL, H., AND CHILDS, S. B. *A Comparison of Physical Signs and X-ray Pictures of the Chest in Early Stages of Tuberculosis.*
7. LEWIS, P. A. *The Selective Relation of Certain Vital Stains to the Tubercle.*

1. Herrick reports a case of diabetes insipidus in which there were symptoms pointing to a cerebral origin of the disease. Lumbar puncture, which was made for the purpose of investigating the cerebrospinal fluid, had the remarkable effect of diminishing the amount of urine and raising its specific gravity. The man had had the disease for four years, the urine being of specific gravity 1001 and its twenty-four hour amount from 7,500 to 11,000 cc. At the puncture less than 5 cc. of fluid was withdrawn and it escaped slowly under low pressure. Within forty-eight hours the daily amount of urine had dropped to 660 cc., although food and water were freely taken, and there was no thirst as before. For a period of four weeks the twenty-four hour amount never exceeded 1800 cc. and the specific gravity averaged 1015, ranging from 1005 to 1031. The result of the puncture suggests that the cause of the polyuria in this case was a lesion of the brain, perhaps in the hypophysic.

3. Farr and Welker studied the distribution of urinary nitrogen in health and in nephritis after the use of theophyllin. In two of their four cases theophillin promoted the excretion of fluid but slightly diminshed the excretion of nitrogen. In a case of diffuse nephritis anuresis failed to develop and the nitrogen elimination was sharply reduced. In a case of chronic interstitial nephritis the urinary partition was apparently changed by the drug so that it approached more nearly the normal. The slight or doubtful influence of theophyllin on nitrogen excretion and its pronounced influence on the excretion of water and sodium chloride suggest that this substance may act principally on the capsule of Bowman and little if at all on the tubules. Its failure to act in the case of diffuse nephritis might then be attributed to extensive involvement of the glomeruli. Most clinicians consider theophyllin contraindicated in acute nephritis. It is generally agreed that it meets its best indication in the passive congestion and edema of heart disease, especially when combined with digitalis.

4. Myerson writes an interesting paper on the periosteal group of reflexes which he says deserve more attention than they have received up to the present time. He mentions two series of reflexes—one obtained by tapping the ulnar styloid process (a contraction of the triceps, the posterior fibres of the deltoid and sometimes the spinati, rhomboids, trapezius and biceps) and the other obtained by percussion of the anterior superior spine of the ilium, the condyles of the femur, the anterior surface of the tibia and the sole of the foot. These reflexes are very prominent in disease of the cerebral cortex, particularly in uncomplicated general paralysis. They are often exquisite in cerebral arteriosclerosis. In diseases of the pyramidal tract they are marked; in uncomplicated hemiplegia they are present on both sides but greater on the affected side. In complete tabes they are absent; in pre-ataxic tabes with retention of the knee-jerks, they are often very lively. In Graves' Disease they are often increased, but in large goitres without definite symptoms they are less common. In neurasthenia they may be prominent. The writer believes that the periosteal reflexes are sufficiently important to be incorporated into routine neurological examinations.

6. Sewall and Childs write a valuable paper on the relative diagnostic importance of physical signs and x-ray pictures of the chest in early phthisis. They consider that auscultation of the voice and whisper affords a very delicate index of pathological changes in the lungs. Vocal resonance involves vibrations both of the thoracic viscera and of the chest wall. The latter vibrations may be damped and removed from consideration by pressure applied to the bell of the stethoscope. The whisper, under ordinary conditions, does not evoke the resource of the parietes; it is rendered plainer and brought nearer the ear by stethoscopic pressure. Although physical signs are valuable, a skiagram of the chest is essential to the proper understanding of a patient's condition. Skiagraphic study of the chest gives information not only about the lung parenchyma but also concerning the bronchial glands and their associated peripheral lymph nodes. In practically all of the writer's improved but suspected cases the negatives showed more or less extensive areas of pulmonary congestion, denoted by thicker branches and denser arborizations of the "bronchial tree." The recognition of abnormal congestion has great importance in the early diagnosis of pulmonary tuberculosis and herein lies a specific diagnostic property for the x-ray plate.

[L. D. C.]

BERLINER KLINISCHE WOCHENSCHRIFT. No. 13.

MARCH 25, 1912.

1. KILLIAN, *A suspended laryngoscope.*
2. MUNZER, A. *The influence of the blood pressure on the course of the psychical functions.* (Continued.)
3. MARX, H. *Responsibility and activity. A contribution to the question of dual personality in legal psychiatry.*
4. GOPPERT, F. *Valvular closing of the first part of the large intestine in late infancy by kinking.*
5. ROHRBACH, R. *A high grade atypical epithelial proliferation from Syphilis.*
6. LESSER, F. *Epileptiform attacks from Salvarsan.*

7. HALBERSTAEDTER, L. *The Wassermann reaction in rabbits.*
8. *SUSSENGUTH, L. *What has extension by nails accomplished in the treatment of fracture?*
9. PELTESOHN, S. *A case of paralysis of the peroneal muscles due to constriction by the amniotic sack.*
10. HAGA, I. *Tracheopathia osteopatica.*

8. The author reports his experience with 20 fracture cases treated with the nail extension method. A description of this method appeared in the *Deut. Zeit. für Chir.*, Bd. 108, P. 419, and was reviewed in the BOSTON MEDICAL AND SURGICAL JOURNAL. The method was found to have advantages in its direct effect on the broken bones, stimulating union; the bones were more firmly fixed; massage and active and passive motion could be more quickly instituted; the possibilities of eczema and skin irritation were much less; and the circulation was much improved.

On the other hand the pain following the application of the nail, the danger of infection, (one case was lost from infection), and the loosening of the nail, all were against the use of the method.

He regards nail extension as an addition to the treatment of fractures and especially compound fractures with extensive laceration of the soft parts, but he considers it far from the ideal treatment. He further states that it can only be used in well equipped hospitals, and by expert surgeons. It should not be attempted by the general practitioner.

[J. B. S., Jr.]

BERLINER KLINISCHE WOCHENSCHRIFT. No. 14.
APRIL 1, 1912.

1. SAUERLAND, F. *Acquired hyperesthesia of the skin.*
2. LAZARUS, P. *Modern radium therapy.*
3. KNICK, A., AND ZALOZIECKI, A. *Trouble with the auditory nerve in the early stages of Lues, especially following Salvarsan.* (Continued.)
4. ARONSON, A. *Further researches on anaphylatoxins, and the bacterial poisons.*
5. WEINBERG, W. *Methods for studying heredity in man.* (Continued.)
6. MUNZER, A. *The influence of the blood pressure on the course of the psychical functions.* (Concluded.)

BERLINER KLINISCHE WOCHENSCHRIFT. No. 15.
APRIL 8, 1912.

1. *KRAUSE, F. *Resection of the liver for tuberculosis with demonstration of the patient.*
2. *NEUFELD, F., AND HANDEL, L. *Serum therapy in pneumonia, and the value of pneumococcus serum.*
3. ZLATOGOROFF, S. J., AND WILLANEN, K. Z. *The effect of anti-toxin on the isolated rabbit's heart.*
4. BERNHARDT, M. *The pathology of facial paralysis.*
5. WECHSELMANN. *The effect of salvarsan on the cerebro-spinal fluid.*
6. FEJER, J. *The eye and Salvarsan.*
7. KNICK, A., AND ZALOZIECKI, A. *Trouble with the auditory nerve in the early stages of Lues, and especially after Salvarsan.* (Concluded.)
8. FRIEDLANDER, W. *Local treatment with Mesothorium.*
9. WEINBERG, W. *A method for the study of heredity in men.*

1. Krause reports an interesting case of a large tuberculous mass resected from the liver of a 33 year old man, who had been having symptoms referable to his stomach for about two months prior to operation. The resection was done without any difficulty, and the man rapidly improved. In looking up the literature on the subject he found that there had been 20 cases reported. His was the only one which had been operated on, and recovered. Most of the others were in conjunction with tuberculous peritonitis.

2. The authors had three problems to solve. 1st. If larger doses of the serum were given as soon as the initial lesion in the lung was found, what the result would be. 2nd. By animal experimentation to find out, how much could be safely given. 3rd. The effect of serum on the antibodies as compared with the cases which had not received it.

They believe that large initial doses lessen the course of the disease and the crisis appears more quickly. The serum which they used was first tested on guinea pigs, and standardized, the authors believing that this is an important part of the work. They further believe that the use of serum strengthens the resisting power of the body, and they believe that the prophylatic use of it might be beneficial, in the light of the extremely high percentage of lung infections occurring in Germany.

[J. B. S., Jr.]

BERLINER KLINISCHE WOCHENSCHRIFT. No. 16.
APRIL 15, 1912.

1. SCHWARTZ, G. *New X-ray findings in the gastro-intestinal tract.*
2. ROMER, P. H. *Studies in the epidemiology of pulmonary tuberculosis.*
3. BAERTHLEIN. *New bateriological findings in dysentery.*
4. PLESCH, J. *The biological action of Thoriums.*
5. FRIEDBERGER, E., AND MORESCHI, A. *Anaphlyatoxins.*
6. WEISMANN, R. *Results of inhaling Tulisan for asthma and tuberculosis.*
7. ALEXANDER, A. *New principles in the treatment of eczema.*
8. RABINOVITCH, L. *Prof. J. Orth's lecture on "Animal and Human Tuberculosis," at the meeting of the Royal German Academy, Feb. 8, 1912.*

WIENER KLINISCHE WOCHENSCHRIFT. No. 30.
JULY 25, 1912.

1. *SCHÖNFELD, A. *The Knowledge of Hysteric Cortical Motor Aphasia, with Amnesia, Alexia, and Agraphia.*
2. *POINDECKER, H. *Concretion Formations in the Appendix.*
3. POLLITZER, H. *Neurogenic Galactose Intolerance.*
4. ZOLOZIECKI, A., AND FRÜHWALD, R. *The Knowledge of Disturbances of the Cranial Nerves in the Early Stage of Syphilis, Especially after Salvarsan.* (Conclusion.)
5. SOLOMON, H. *The Action of Carcinoma Serum on Carcinoma, and the Increase of Oxyprotein Acid in Carcinoma.*
6. FREUND, E. *Rejoinder to the Above.*

1. Schönfeld describes and analyzes a very interesting and peculiar case of hysteric aphasia, which he contrasts with the subcortical and sensory types of Knapp and Mann respectively.

2. Poindecker believes that the formation of appendiceal concretions is due to collections of inspissated mucus in distal pockets of an appendix whose lumen has been partly obliterated by previous phlegmonous inflammatory process. [R. M. G.]

REVUE DE MÉDICINE.
JULY, 1912.

1. *MANONKHINE, J. J., FIESSINGER, N., AND KROHMITSKY, G. A. *Action of Metallic Ferments Upon the Quantitative Variations of White Cells and on the Leucocytolysins of the Blood.*
2. JEANSELME, E., AND CHEVALLIER, P. *Researches on Secondary Syphilitic Meningopathies, Clinically Latent.* (To be continued.)
3. BARBÉZIEUX, G. *Contribution to the Study of Leprosy. The Fever and the Accidents of Pre-Leprosis.*

1. Injections of metallic ferments produce in normal individuals at first a hypoleucocytosis, followed by a hyperleucocytosis unassociated with any leucocytolysins. In pneumonia and acute articular rheumatism the primary hucopœnia is more pronounced and the blood shows a feeble leucocytolic activity. The subsequent hyperleucocytosis follows as in healthy subjects. In favorable cases there is a final hypoleucocytosis again accompanied by the appearance of leucocytolysins. This phenomenon appears only after "crisis." [L. H. S.]

ANNALES DE L'INSTITUT PASTEUR.
JUNE, 1912.

1. *DRATCHINSKI, M. S. *Contribution to the Study of the Influence of Indol on the Sclerosces.*
2. WEINBERG, M. *Rotational Technic of the Fixation Reaction.*
3. MARIE, A. *Biologic Properties of Albuminoid Substances Extracted from the Brain.*
4. BOULLANGER, E. *Studies on the Catolytic Fertilizers.*
5. *VIOLLE, H. *The Gall-Bladder Regarded as a Place of Inoculation. Contribution to the Study of Immunity and of General Physiology.* (Conclusion.)

1. From an experimental study on guinea-pigs, Dratchinski concludes in part that varying doses of indol provokes crises of acute intoxication manifested by neuro-muscular phenomena, capable of having a fatal issue, but also of terminating in recovery. The fatal issue depends on the dose, the mode of introduction of the indol here playing no part. The introduction of small doses of indol (gr. 0.04 every day) by the buccal route for a sufficiently long period provokes in the guinea-pig an atheromatous degeneration of the wall of the aorta in the region of the valves. There are observed also in such cases chronic interstitial processes in the different organs, sclerosis of the kidneys and suprarenals, and the primary phases of cirrhosis of the liver and sclerosis of the brain. The implication is that the sclerotic processes associated with old age in man are similarly due to chronic indol poisoning.

5. Violle advocates the use of the gall-bladder as a site of inoculation of divers antigens to produce the formation of corresponding specific antibodies. This mode of inoculation he declares easy and without violent reaction. He believes that it produces a rapid immunization without negative phases, and of long duration. When this degree of immunization is too slight, hyper-immunization may be obtained without reaction, by consecutive intravenous injections of the same antigen.

[R. M. G.]

BULLETTINO DELLE SCIENZE MEDICHE.
JUNE, 1912.

1. FINI, M. L. *Contribution to the Knowledge of the Elimination of Iron through the Urine.*
2. *LIVI, C. *Researches on Galvanic Vertigo.*

2. From a series of experimental investigations, Livi concludes in part that the so-called galvanic vertigo of the pigeon is a complex phenomenon produced by the excitation of the non-acoustic labyrinth of the ear; that the movements of nystagmus of the head and eyes have origin from the semicircular canals, but when these are absent may be produced with the same characters by excitation of the corresponding nerve centres; that the movements of inclination and rotation of the head have origin from excitation of the utricle and saccule; that, contrary to Ewald's conclusion from pigeons operated by total delabyrinthation, unilateral lesions of the semicircular canals have, from the point of view of these phenomena, bilateral effects. [R. M. G.]

APPOINTMENTS.

DR. EDWARD DAVIS CONGDON, instructor in anatomy at the Cornell Medical School, has been appointed instructor in anatomy at Stanford University.

DR. ERNST GAUPP, of Freiburg, Germany, has been appointed professor of anatomy at University of Königsberg.

DR. THOMAS L. PATTERSON, formerly of the department of biology in Highland Park College, has been appointed associate professor of biology and physiology at the University of Maryland Medical School, Maryland.

DR. VON WASSERMANN has been appointed head of the new Institute for Experimental Research on Cancer, recently established in Germany by the Kaiser Wilhelm Society for the Promotion of Science.

RECENT DEATHS.

DR. FREDERICK EARL BEAL, who died of pneumonia last week in New York City, was born at Hamilton, Ohio, in 1868. After studying for a time at the Omaha Medical College, he entered the Rush Medical College, Chicago, from which he received the degree of M. D. He first settled in 1894 at Springfield, Nev., where he practised his profession for seven years. From 1901 to 1904, he lived abroad in the study of medicine at Vienna. On his return he became professor of physical diagnosis at the New York Polyclinic Hospital, a position which he still held at the time of his death. He was a member of the American Medical Association and of the Polyclinic Medical Society. He was a widower.

DR. HERBERT WATSON BELDEN, of Northampton, Mass., who died at Goshen, Mass., on Aug. 5, was born in 1866. He received the degree of M. D. in 1888 from the Baltimore Medical College. He was a Fellow of The Massachusetts Medical Society, and was vice-president and recently secretary of the Hampshire District Medical Society.

DR. HENRY F. BORDEN, who died last week at Brockton, Mass., was born in 1844. He received the degree of M. D. from the Harvard Medical School in 1869, and since that time had practised his profession in Brockton.

DR. JOHANNES CHATIN, who died recently at Paris, was born in 1847. He was professor of histology at the University of Paris, and was known for his work on comparative anatomy.

DR. SAMUEL C. HOTCHKISS, of the United States Public Health and Marine Hospital Service, who died on Aug. 7 at Washington, D. C., was born in Ohio in 1882. He was not married.

DR. LEONARD M. KIMBALL, who died on Aug. 5, in Brookline, Mass., was born at Amherst, N. H., in 1848. He studied for a time in Boston University, and received the degree of M. D. from Pulte College, Cincinnati, in 1871. He had practised his profession for the past twenty years in Boston. He is survived by his widow.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, AUGUST 3, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	14	5
Chicago	585	226	Waltham	4	2
Philadelphia	—	—	Brookline	4	1
St. Louis	—	—	Chicopee	11	7
Baltimore	—	—	Gloucester	5	—
Cleveland	—	—	Medford	9	5
Buffalo	—	—	North Adams	3	1
Pittsburgh	—	—	Northampton	8	2
Cincinnati	—	—	Beverly	—	—
Milwaukee	—	—	Revere	3	—
Washington	—	—	Leominster	6	2
Providence	—	—	Attleboro	2	0
Boston	24	59	Westfield	6	4
Worcester	51	16	Peabody	4	—
Fall River	50	27	Melrose	5	0
Lowell	30	17	Woburn	5	1
Cambridge	24	9	Newburyport	2	1
New Bedford	31	15	Gardner	—	—
Lynn	16	3	Marlboro	1	0
Springfield	18	8	Clinton	3	2
Lawrence	28	15	Milford	—	—
Somerville	14	5	Adams	3	2
Holyoke	17	13	Framingham	—	—
Brockton	7	3	Weymouth	—	—
Malden	7	—	Watertown	3	1
Haverhill	10	3	Southbridge	6	3
Salem	13	2	Plymouth	—	—
Newton	7	—	Webster	3	2
Fitchburg	5	4	Methuen	2	—
Taunton	14	7	Wakefield	—	—
Everett	7	2	Arlington	2	—
Quincy	—	—	Greenfield	2	2
Chelsea	12	4	Winthrop	1	—

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Original Articles.

BLOOD TRANSFUSION: INDICATIONS, METHODS AND RESULTS.*

BY BETH VINCENT, M.D., BOSTON.

A REVIEW of the literature of Blood Transfusion, since the operation was placed on a practical basis by the work of Crile[1] and Carrel, shows that this procedure has not developed a wide use in medicine and surgery. While recent clinical experience confirms the great value of transfusion in some conditions, it has also emphasized the limitations of the operation. It is not my intention to discuss the whole subject at this time but I wish to consider a few practical points in regard to the use of transfusion and the best methods of operation.

INDICATIONS.

The broad indications for transfusion are based on the fact that transfused blood is a perfect substitute for blood lost in acute hemorrhage; in certain pathologic hemorrhages the blood has definite hemostatic properties, and in some secondary anemias it acts as a powerful stimulant to tide over a crisis in the disease.

ACUTE HEMORRHAGE.

To make good a direct loss of blood transfusion is invaluable in acute hemorrhage after injury or operation, in ectopic gestation and in the uterine hemorrhages of childbirth, miscarriages or fibroids. It is indicated in severe bleeding from ulcers in the stomach, duodenum or intestine. Typhoid patients, moribund from bowel hemorrhages, may be revived by transfusion but, even when an immune donor is used, the procedure does not seem to alter the course of the disease or prevent a recurrence of the bleeding.

SHOCK.

In severe shock which, in a sense, is allied to hemorrhage, if we consider the condition one of intra-vascular bleeding, the transfusion of blood is more effective than heat, stimulation, posture or salt solution in relieving the vaso-motor paralysis and raising the blood pressure.

GAS POISONING.

The use of blood transfusion in gas poisoning seems to be directly indicated by the experimental work of Crile and yet only a few cases of this kind have been reported. Carbon monoxide has a stronger affinity for hemoglobin than oxygen. When the oxygen is displaced by the formation of carbonic-oxide hemoglobin, the red corpusele, as an oxygen carrier, is removed from the circulation as effectively as in acute hemorrhage. To restore the oxygen-carrying capacity of the blood normal red cells must be substituted for the damaged corpuscles. This requires bleeding before or during the transfusion. In gas poisoning the blood clots quickly and bleeding is not always easy in these cases.

PATHOLOGIC HEMORRHAGE.

In certain pathologic hemorrhages transfused blood has a remarkable hemostatic effect. The bleeding in these cases is supposed to be due to the lack of certain elements in the patient's blood. Transfusion corrects this deficiency and, at the same time, restores the blood already lost by the hemorrhage. In this latter respect transfusion has a distinct advantage over the injection of serum which has also proved to be valuable in these pathologic hemorrhages. In exsanguinated cases to simply check the bleeding may not be sufficient. Transfusion is required to restore the cellular elements of the blood.

Examples of this type of hemorrhage which may be benefited by transfusion are found in the bleeding which occurs in deeply jaundiced individuals, in hemophilia and in hemorrhagic disease of the new-born. As a prophylactic measure Wiley Meyer[2] advocates the injection of human serum before operation on jaundiced cases. When severe post-operative bleeding does occur, transfusion is probably the one procedure which can save these patients. It seems logical to suppose that the effect is only permanent in those instances in which the cause can be remedied by drainage or the removal of some obstruction. The following case, which I transfused on April 21, 1912, is a good example of the usefulness of this operation in icteric conditions.

The patient was a woman who had been deeply jaundiced for four weeks before an operation on April 8, by Dr. E. A. Codman, at which a greatly distended common duct was found. Both the duct and the gall-bladder were drained. There was no immediate bleeding from the operation wound. The jaundice persisted in spite of free discharge of bile. After developing a few subcutaneous ecchymoses the patient began to bleed, two weeks after the operation; the bile from the drainage tubes was replaced by red blood. At the same time there was profuse bloody discharge from the uterus which lasted four days. Transfusion was done with the patient in a serious condition.

The brother served as donor. An Elsberg canula was used and the blood flowed for forty (40) minutes. The transfusion caused an immediate improvement in the patient's condition and effectively controlled the hemorrhage; the discharge from the wound changed to bile and old blood. At times it seemed as if there was a little fresh bleeding but this was not enough to affect the patient's condition. The jaundice gradually disappeared and the bleeding had not recurred up to the time of the patient's discharge from the hospital, about one month after the transfusion.

In hemophilia transfusion is an effective temporary measure. It may save the patient in any

* Read at the annual meeting of the Massachusetts Medical Society, June 12, 1912.

particular attack but it does not alter that individual's inherited tendency to bleed.

Welch,[3] Schloss and Commisky,[4] and others have reported excellent results with the injection of human blood serum and whole blood in hemorrhagic disease of the new-born. The value of transfusion in this condition has been conclusively proven by the clinical experience of several men.[5] The writer has transfused nine (9) infants by means of glass tubes for this disease; six (6) of these cases have been reported.[6,7]

The amount of blood to be transferred to the new-born infant is very small. In many cases the duration of the flow of blood varied from three to six minutes. A baby of eight pounds is estimated to have a total blood quantity of a little more than six ounces. Since a dog cannot always survive a loss of one-half the total quantity of blood, it is fair to conclude that the loss of an exsanguinated infant is less than one-half its total quantity. The amount to be transfused to a new-born infant, therefore, is always considerably under three ounces.

Viewed from another angle these figures also show why infants seem so susceptible to hemorrhage. In dealing with these cases it is not safe to temporize too long with measures which may check the bleeding after a time but cannot relieve the anemia. This advantage of transfusion over serum injections applies with equal force to any case of hemorrhage in which we have an exsanguinated patient.

SECONDARY ANEMIA.

Transfusion is less clearly indicated in the secondary anemias which are not due to the loss of red corpuscles from the body. The cause of the anemia is too often a pathological condition which is incurable or not altered by the transfusion of blood. Illustrations of the stimulating effect of transfused blood are found in its use as a preparatory measure before operations on weak patients, in pellagra[8] and in certain cases of prolonged suppuration with profound anemia. In such instances the beneficial effect of the transfusion is obtained by increasing the patient's resistance and augmenting the natural forces which combat the progress of the disease.

In purpuric conditions of obscure etiology transfusion is not indicated by the results which have been secured up to the present time. It may prove to have a place in the treatment of the purpura when we have a better understanding of the diseases in which purpuric hemorrhages occur.

In pernicious anemia, leukemia, certain toxemias, acute infections and malignant disease the negative results are sufficiently definite to contra-indicate transfusion in these cases.

Properly safeguarded transfusion is not a dangerous operation. The withdrawal of too much blood from the donor and the dilatation of the recipient's heart are usually avoidable mishaps.

Embolism, sepsis, the transmission of disease and even hemolysis are of much less frequent occurrence than was formerly supposed. The danger of hemolysis has been exaggerated by most writers. Crile[9] says that kinship between donor and recipient is apparently of no special advantage and the laboratory test may show hemolysis and yet the same blood be entirely safe in transfusion.

He did transfusion in eighteen tuberculosis cases and in most of these the donor's blood hemolysed the recipient's blood in the test tube but not in the patient. In spite of its comparative safety, however, transfusion should be considered a measure of last resort to be applied when simpler means have failed and only to those cases in which there is rational basis for its use.

METHODS.

The blood is transferred from donor to recipient in transfusion by uniting their vessels either directly or at a distance. Direct union is accomplished by Carrel's suture method or by the canula method of Crile. The best means of effecting union at a distance is by means of the Brewer glass[10] tubes. Clotting of the blood is prevented in the method of direct union by approximating intima to intima. In glass tubes clotting may be delayed by coating the tubes with paraffin or some similar substance.

To be successful with any method requires special training in blood vessel work. These methods have been variously modified to simplify the operation but none of the modifications have removed all the technical difficulties of a transfusion.

The method of direct suture should not be attempted without a laboratory training in blood vessel surgery. The technic is simple but difficult and the result is the same whether the vessels are united with sutures of very fine silk or by means of a canula.

The Crile canula can be successfully used by any well-trained surgeon with a little blood vessel experience. This canula has been modified by Janeway,[12] Elsberg,[14] Soresi,[15] Bernheim[16] and Levin.[17] The instrument described by Elsberg in 1909 seems to have been most successful in overcoming certain disadvantages of the Crile canula. When using the Crile canula the vessel must be introduced through the lumen before being cuffed back over the canula. With the Elsberg canula the vessel is slipped into the canula through a slit in the side. In the original Crile instrument the cuffed vessel was secured by a ligature. The Elsberg canula has four sharp hooks, which hold the vessel in place without a ligature. Finally the Crile canula must be carried in four sizes to fit the vessels of different calibre, while the Elsberg canula is adjustable like a monkey wrench. It can be made to fit any vessel and altered during the transfusion to increase or diminish the flow of blood. These are, on the whole, minor points

but probably of sufficient importance to make the difference between success and failure in some cases.

The value of tubes in transfusion depends upon the length of time blood will flow in the tubes without clotting. Even when glass tubes are coated with paraffin or some similar substance this time is definitely limited. If this limit always exceeded forty (40) or even thirty (30) minutes this method would be practical for all transfusions because a flow of this duration is sufficient in most cases.

Fauntleroy[20] and Williams[12] of the United States Navy have reported several cases successfully transfused with tubes. The flow of blood was maintained thirty (30) and forty-two (42) minutes in two of the cases. Fauntleroy[11] used coated tubes, shaped like an "S" or "U" with a lumen one eighth of an inch in diameter. The vessels were united on the vein to vein principle. Other men have tried the tubes and reported that clotting occurred before enough blood had been transferred. I have transfused, without difficulty, eleven infants by means of glass tubes modified to suit the small, inaccessible veins of these patients and am convinced that they are of real value in these cases.

The amount of blood to be transfused in the new-born is very small, certainly less than three ounces. In my experience the duration of flow, even when the current is checked from time to time to prevent dilatation of the heart, is never more than six minutes, which is well within the clotting time in these small tubes. Just how long the blood will run through the tubes I am unable to say. I have used them in transfusing a child of six years. The flow was interrupted after 9½ minutes and at the end of the operation the blood had not clotted enough to block the tube. The tubes made for new-born infants are 12 cm. long and 3 mm. in diameter. The end which is inserted into the infant's vein is about 2½ mm. in diameter. They are coated with a wax mixture consisting of stearin, vaseline and paraffin in 1-2-2 proportions. The length of the tube is important because, when tied to the infant's vein, it practically lengthens this vessel to such an extent that the final connection with the donor's artery is easily made.

The connection between the circulation of donor and recipient is made by uniting artery to vein or vein to vein. Dorrance and Ginsberg[18] advocate the vein to vein method to simplify the operation. Hartwell,[19] Soresi[15] and Fauntleroy[20] also speak well of this procedure. The artery to vein is the older and more widely used method. The radial artery is connected with any vein of suitable size in the arm of the recipient. In infants the arm veins are so small that most operators have taken the femoral or long saphenous vein in the thigh. I have used the external jugular vein in my last eight cases in infants and find that this vessel is well adapted to the operation in these cases.

The merit of these various methods and devices for transfusion can be summed up as follows:

Any one of them may be successfully employed, by an operator who has familiarized himself with the technic of that particular method or instrument. In other words, success in the operation of transfusion is more dependent upon adequate experience than any special method. In adults the Elsberg canula is evidently the best for the average surgeon. In infants the operation is done with the least difficulty by means of glass tubes of proper length and size.

RESULTS.

For the treatment of acute or traumatic hemorrhage in an otherwise normal individual, blood transfusion is the most effective measure at our command. When the bleeding occurs in such diseases as duodenal ulcer, typhoid fever or tuberculosis of the rectum, transfusion aids mechanically in restoring the blood and may prevent a death from hemorrhage but as a therapeutic agent it seems to have no effect on the disease.

The results in shock and gas-poisoning justify its use in these cases.

In certain pathologic hemorrhages transfusion is as valuable as in acute hemorrhage. In the hemorrhages of icteric conditions the tendency to bleed can be permanently checked if the underlying disease is relieved by suitable operative measures. Hemophilic bleeding may be arrested by transfusion but the disease is not cured. In hemorrhages of the new-born, a disease which was formerly credited with 50 to 75 per cent.[21, 22] mortality, transfusion stops the bleeding, restores the blood and apparently transforms a very sick baby into a normal healthy infant.

Lespinasse and Fisher, in 1911, collected six cases of hemorrhagic disease treated by transfusion, with two deaths and four recoveries. In nine cases which I have transfused for this disease there have been eight recoveries and one death. Most of the patients were in poor condition at the time of the operation. The hemorrhages were usually from the bowels. In two instances large hematomas formed in the cheek. In one of the cases this was accompanied by extensive bleeding beneath the scalp. The convalescence in this case, contrary to the rule, was difficult and prolonged. The infant ran a very high temperature until the hematomas had been absorbed.

My most recent case was one of uncontrollable hemorrhage from the umbilical stump. The bleeding stopped within one-half hour after the transfusion and furnished a good illustration of the hemostatic properties of normal blood. In this case a positive Wassermann test showed that the etiologic factor may have been syphilis.

In the one case in which transfusion failed, the baby, when three days old, began passing bloody stools, apparently typical of hemorrhagic disease. Transfusion was followed by the usual

improvement. Eight hours later the child vomited and began to fail. There was no sign of fresh bleeding but at the time of death, fifteen hours after transfusion, it was supposed that the hemorrhage had recurred and would be found in the stomach or bowels. Autopsy showed a diffuse peritonitis which was undoubtedly present and undetected at the time of transfusion. No perforation of stomach or intestine could be found.

The value of transfusion in secondary anemia is based upon the stimulating effect of the donor's blood. The wisdom of its use in such cases will depend upon the cause of the anemia. In general, transfusions should not be employed to restore red cells which have been destroyed within the body unless the cause of this destruction can be remedied by subsequent treatment.

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INTRA-RECTAL RUPTURE OF SUPPURATING SINUS FROM HIP JOINT DISEASE.*

BY RALPH W. JACKSON, M.D., FALL RIVER, MASS.

Proctologist to the Union and City Hospitals, Fall River, Mass.

This paper is not intended to present something startling in the treatment of a particular condition, but rather to summarize the results of an investigation as to its frequency and the possibilities of alleviating the discomfort of a recent patient. The paths of proctologist and orthopedist cross at the point suggested by our title, and a problem arises of interest to either specialist, viz. the occurrence of para-rectal abscess, originating in tubercular disease of the hip joint, pointing into the rectum, and leaving a suppurating sinus of indefinite duration connecting the joint with the gut. This involves not only the question of an almost incurable discharge into it of pus of extra-rectal origin, but also the possibility that such a sinus will sooner or later rupture or be opened externally. The result is a complete fistula with the external opening nobody knows where, and the internal one usually large and ragged and very likely well above both sphincters. The operative uncertainties of such a fistula are great enough without the inroad of the infection via the sinus from the hip and still greater with that present. It is fair to infer too that the prognosis for the joint lesion is not so good, as long as the danger exists of a rather vicious mixed infection by a counter current of colon bacilli and other organisms reaching the joint via the same sinus. The proctologist would like to close his fistula and the orthopedist to close his sinus as soon as the primary focus in the joint can be quieted. Each wants to be rid of the other's infection. Can any surgical procedure separate fistula from sinus and simplify the question, or must this coxitic sinus be allowed to go on till it closes in its own good time, and leaves a fistula which will never close of itself?

The case which is my text was first seen March 13, and referred by Dr. W. R. MacAusland, orthopedist of Boston, and his home medical attendant, Dr. D. D. Pratt of New Bedford. The following summarizes his record then taken. Male, age 30, telephone clerk, English parentage, and family history negative except mother died of tuberculosis when he was seven years old. As an infant health was delicate. At age of five or six tubercular coxitis began and at times since has had abscesses and discharging sinuses. Seven months ago had para-rectal abscess which ruptured into the rectum. Same was later on account of urgent symptoms freely opened externally. For four months has been wearing a plaster spica. General health fair and maintaining weight, but unable to work and cannot walk without cane. The incision near anus discharges stercoraceous pus and some pus comes from anus and frequent dressings are required. Has persistent intra-anal soreness and pain when erect. His general appearance is good. His temperature range while in the Union Hospital, Fall River, has been 98 to 100. General physical examination negative except hip trouble and its sequences. Left leg is smaller than right, thigh flexed at an angle of 45 degrees and adducted, and joint partially ankylosed. There are five scars of past sinuses on front, side and back of thigh, some of which it is asserted have been closed by the therapeutic use of bismuth paste. Of active ones there are four, one below the anterior superior spine, another in the gluteal fold, the external incision about 6 cm. in left posterior direction from anal margin, and the intrarectal opening. This last is shown by digital and speculum examination

* Read before the meeting of the American Proctologic Society, Atlantic City, June 3 and 4, 1912.

about 3 cm. above the internal sphincter on left side, pocket shaped and easily admitting the examining finger. Further proctoscopic search is negative. The assumption from the above was that a sinus from the hip had burrowed inward to the ischio-rectal fossa, whence the resulting abscess had ruptured into the rectum (though the line of least resistance and easiest point of inward rupture would have been between the sphincters), and besides had pointed and been incised externally.

Attempts to verify this diagnosis by radiographic work were difficult and the results not certain in spite of patient repetition by our radiologist, Dr. W. A. Dolan. The only available avenue of injecting bismuth in any quantity was the external incision, and the internal opening was so large that it could not be blocked sufficiently to prevent the paste from pouring out into the rectum, and thus losing the pressure needed to force it far into small sinuses and reveal the line of approach from the joint. Nevertheless a series of radiograms were taken, some of which are shown here, including a stereo-photo, and a composite conclusion from all is found in the accompanying diagram. Guided by these a semi-exploratory operation was undertaken April 22d. The large fistulous track was easily seen and from it a sinus running off into the buttock. Crossing this was a long, narrow, vertical streak of bismuth coming from near the joint, but the angle of crossing was so sharply defined as to preclude the sinuses being in the same plane. An antero-posterior communicating track between them (though not visible in the plates) was thought possible. Had this been the case, the intention was to open the outer end of the buttock sinus on the surface and excise and suture the portion between that and the fistula, thus giving the supposed line of approach from the joint an external point of discharge like the other active sinuses, and leaving the fistula complete but uncomplicated, to be dealt with later. This procedure might have had fair chance of success but was contra-indicated because the vertical sinus was proved to be in an anterior plane and lacking inter-communication with the buttock sinus, which was found to have a blind end and was evidently an effort of the insufficiently drained fistula to find another point of escape for the pus. Digital examination of the fistula showed at the summit a shelving edge, and just beneath it two sinus openings could be felt, into which probes were passed upward within the pelvis for at least 5 to 6 cm. Reference to the x-ray plates then suggested that these were the openings of sinuses indicated by two ill defined bismuth streaks, about the meaning of which I had not been satisfied, but now without doubt proven to be the real line of approach from joint to rectum. But manifestly the height from which they came and the sharp angle of junction with the rectum would thwart any surgical effort to divert them to an external opening. Bismuth paste was injected directly into the two sinuses for the purpose of taking another radiogram the next day after the operation. It showed them running far up into and toward the brim of the pelvis.

It being evident that these two tracks must be left to discharge into the rectum, because any effort to close them entirely would be illogical with the actively diseased hip as their origin, there was left the problem of the intolerable fistula for which something ought to be done. The distal end of the buttock sinus was freely opened externally and wicked. The main fistula was curretted of all necrotic tissue and then split radially inward until the sphincters were reached but not touched. The internal opening was blocked with gauze and wicks tightly placed just behind the sphincters but the rest of the incision left loosely packed. This process is being kept up daily with stimulation of the loosely packed portion, meanwhile the bowels being kept in a semi-constipated condition to prevent as far as possible fecal contamination. The purpose of this treatment is to gradually work the fistula inward till it becomes merely a retro-sphincteric track; and there is some progress toward the desired result, except that it is evident the mere drainage of the buttock sinus from its end is inadequate and the whole will have to be laid open. If we can accomplish the above purpose, it may be possible to incise the sphincters with so little gaping that fecal continence will not be seriously threatened. At least the substitution of a para-anal opening for one some distance away from the anus is worth while for the easy retention of dressings, particularly when the patient must wear a cast.

For details of other cases of intra-rectal rupture of hip joints sinuses I have consulted available literature, and sought information by letter and interview from various proctologic, orthopedic and other sources. The text-books of the two specialties merely mention the fact that such rupture may occur, as also from spinal, sacro-iliac and other disease, but contain absolutely no reference to the fistula complication as seen in my patient. In all some ten men, out of many who have answered, have reported about 30 cases, largely from recollection and without data which could be tabulated satisfactorily. Mr. Mummery writes[1] from London, "I have personally never met with a case of bursting of an abscess of the hip joint into the rectum. I know of no record of any such case at St. Mark's Hospital, and Mr. Edwards has never met with such a case." This from a special rectal hospital with a long history is matched by the following from an orthopedic source. Dr. A. R. MacAusland, at the Hospital for Ruptured and Crippled in New York, has carefully reviewed for me the records of that institution and much literature in search of cases, but without success;[1] and Dr. Gibney, senior surgeon there, states[2] that in all his ex-

perience both in private practice and in his service of over thirty years at the hospital, he has seen no case of rupture of hip abscess into the intestinal tract, nor had he heard of the condition. Dr. Young of Philadelphia writes[1] that in an experience of over 8000 cases during 25 years intra-rectal rupture has not been seen over ten times. Dr. Goldthwait of Boston says[1] it occurs "very infrequently" and this seems to be the gist of the answers. On the other hand Dr. W. R. MacAusland wishes[1] to go on record as believing that the condition is more frequent than ordinarily supposed and the condition overlooked; and this would seem to be borne out by the frank statement in several letters that no rectal examination was made when such rupture was suspected, a neglect of confirmatory examination which is hardly justified by the knowledge that it will not often lead to any treatment of value. The infrequency of the condition as shown by the investigation makes it all the more interesting and more of a trial when it is met.

Simple gravitation through the pelvis from above explains the approach to the rectum of sinuses from spinal and sacro-iliac disease, but the ways in which they may approach from the hip joint, which is, primarily at least, an extra pelvic lesion are not so plain or uniform. The thigh is frequently riddled with sinuses in tubercular coxitis and the easiest way in which one would approach the rectum would be from behind the joint, beneath the gluteus maximus into the ischio-rectal fossa, whence exit into the rectum is easy. This is practically an extra-pelvic course, but the ways in which the sinus may become intra-pelvic are numerous. Among the more obvious ways, it may enter via the obturator foramen or canal; may follow backward the pyriformis through the greater or the obturator internus through the lesser sacro-sciatic foramen; the acetabular variety, on which Dr. Young[3] lays much stress, may rupture directly into the pelvic cavity; or from the anterior wall of the capsule, which Dr. Whitman of New York, quoting from Koenig, states[4] is the weakest point and ruptures easiest, the pus may follow the ilio-psoas upwards and then descend into the pelvis, often forming before doing so an abscess of the iliac fossa. Confirmatory of this is the case illustrated by the excellent radiograph very kindly sent me by Dr. Emil Beck of Chicago. Here it is plainly seen that, as the case history shows,[6] the rectum was reached from the hip by passage over the brim of the pelvis and thence downward. The radiographs of my case show a somewhat similar condition, where are seen the one and possibly two tracts bringing pus to the rectum, though the difficulty of injecting them completely makes it impossible to demonstrate their extreme upper limit. Both cases show shadows of bismuth paste in the iliac fossa. However, I do not think that acetabular perforation could be entirely excluded in my case.

As to the point in the anus or rectum where the rupture occurs, Dr. Young states[1] that they vary but "never occur within the internal sphincter," whereas all the cases of which I have obtained any account of the location of the opening, except his and two by Dr. Gant[1] of New York, the openings have been within the rectum and generally toward the back. Dr. Goldthwait says[1] that the opening may occur "high up or low down" and Sir F. Wallis of London says[8] it may be "anywhere in the bowels" and is "usually above the sphincters." The following have reported[1] openings from one to three inches or more above the external sphincters: Drs. MacKenzie of Toronto 2, Griffiths of Kansas City 2, Mathews of Richmond 1, Beck of Chicago 1, Ricketts of Cincinnati 5, and Brackett of Boston 1. Also Mr. Jones of Liverpool writes[1] of five, presumably above the sphincters. As a matter of fact the rupture is probably intra-rectal nearly or quite as frequently as intra or para-anal, and is so demonstrated in the two cases of which we have radiographs. Really I believe the point of rupture is determined in most cases by the point of entrance into the pelvic cavity. If this is above the brim or anywhere above the areus tendineus (the origin of the levator ani) the pus will gravitate beneath the peritoneum and above the levator and its backward extension, the coccygeus, *i.e.* through the superior pelvic-rectal space and usually empty into the ampulla, or possibly penetrate the levator and discharge below, or rarely do both. If, however, the line of approach is extra pelvic and from below, it means discharge into or near the anus.

As to the question of mixed infection the following is quoted from Wallis[9]: such a condition (intra-rectal rupture) is most deplorable, as the opening into the bowels is usually above the sphincters and probably large, and thus the bowel contents escape and permeate through the various tracks, and sepsis in addition to tubercle is brought about." Some of my correspondents are emphatic in taking this same ground, while others deny or ignore it, knowing that in most cases it can't be helped. Tubercular abscesses from the hip or elsewhere are usually sterile before perforation, and most orthopedists recognize that rupture means infection and avoid incision as long as possible. Dr. Whitman[5] says: "If, before the opening (external) has formed, the abscess has perforated intermuscular fasciæ and has extended between the layers of muscles in various directions, infection is likely to cause local and constitutional symptoms. The thigh becomes the seat of an infectious cellulitis, pockets of pus form which can not be properly drained; hectic, emaciation and loss of appetite follow, and if the profuse discharge persists, amyloid degeneration of the internal organs may result. Such patients are said to die from exhaustion, but the cause of exhaustion is an infected abscess." If all this may come from a mixed infection due to ex-



FIG. I. Showing bismuth shadows of main features of case.



FIG. II. Showing vertical streak of bismuth not seen in Fig. I.

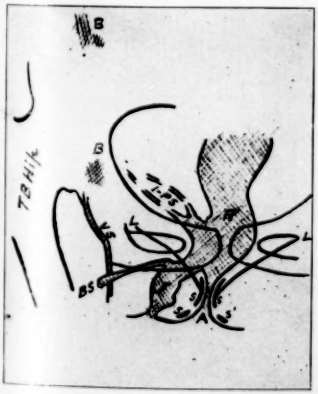


FIG. III. Diagram of all features.

R, rectum. *A*, anus. *F*, fistula. *BS*, buttock sinus. *VS*, vertical sinus. *I-PS*, intrapelvic sinuses. *B*, bismuth. *L*, levator ani muscles. *S*, ext. and int. sphincters.



FIG. IV. Case of Dr. Emil Beck.

Bismuth showing descent of sinuses into pelvis from over brim.

ternal rupture, it is difficult to avoid the conclusion that an infection arising from the inroad of germs from that septic hotbed, the rectum, must be worse. In support of this and as a matter of curiosity, our pathologist, Dr. Mary Marvell, has kindly made some cultures from my case and, as controls, from several other cases of hip disease without any rectal complication. In the former, the smears from the fistula of course, but also from the two active sinuses at a distance from the anus, all developed colon bacilli, which were not developed by the smears from any of the sinuses of any of the controls. Various other germs were of course found in all, chiefly varieties of staphylococcus, but the colon bacillus was looked for to help support the contention that intra-rectal rupture means probable permeation of all the tracks with infection from the gut. No claim is made of course that this is at all conclusive. Though aside from the argument, the query might be raised here whether the constant discharge into the rectum of pus from a tubercular lesion isn't a potential cause of tubercular ulceration of that organ, and whether we wouldn't as proctologists, be glad to be rid of the discharge for that reason.

The continued existence of such infection of course precludes the possibility of operation to correct the contracture of the thigh which so much interferes with these patients getting about comfortably. Any surgical treatment to alleviate the infection depends entirely on the site of rupture. If it is para-anal, it might be incised well away from the anus and the healing so stimulated that the final orifice would be somewhat removed from the danger of infection. If, as in the cases[1] of Drs. Gant and Young, the opening is intra-anal, it is a simple matter by incision of the external sphincter to make it extra-anal, and then, or later perhaps, work the opening away from the anus, and no serious question of continence is involved. But when the rupture is above the internal sphincters, the problem is much greater, and if besides there is external opening, it is formidable. Just as we have said that logically we cannot close the outlet of such sinuses by surgery, it would seem equally illogical to use bismuth paste, even if the openings were accessible (which is unlikely) for satisfactory injection. Dr. Beck[7] himself says, "It is a sinus from a tubercular hip joint and its cure can be accomplished only by curing the focus in the hip joint and not by rectal operation." One might query whether this would hold absolutely true, if there were other active sinuses sufficiently discharging to drain the joint, but this would be difficult to prove. But admitting the impossibility of closing the outlet, it is conceivable that, if the sinus approached the rectum from low down and not at an acute angle, some operation might be done to close the rectal opening, excise and suture a portion of the sinus proximal to the gut, and make it (the sinus) discharge some distance from the anus. But the difficulties in the way of such plastic work are very great. As Dr. Gant writes,[1] the rectal "opening must be enlarged prior to suturing, and in all probability infection and breaking down of the stitches would ensue and the patient left in a worse condition than before the attempt to repair," because there is added to the previous condition a complete rectal fistula, exactly the unfortunate state of my patient. Of the cases of which some record has been obtained, only one other,[1] that of Dr. Mathews, gives a history of external as well as the internal opening, which he states has closed. But when a large and complete fistula already exists, and you run no danger of producing one by the operation, some efforts by plastic work to give the sinus an external opening and separate it from the fistula would be justifiable, if the line of approach is low, extra-pelvic and fairly horizontal: but in view of radiographic and operative proof that the approach is high, intra-pelvic and at an acute angle, any operation of this character would be impossible and the sinus must be left alone.

But there still remains the question of a complete rectal fistula, where incision from opening to opening means severing both sphincters with all the risk of functional disturbance of those muscles. This is purely a proctologic question. Simple antiseptic and stimulant treatment would almost never suffice to close such a fistula. Excision would be impossible without incision of the sphincters. Infection would be inevitable in view of both the rectal contents and the discharge from the coxitic sinus just above, and the result would be disastrous, wide gaping, incontinence, etc. Nor would it have been possible to bring down from above any apron of mucosa (as suggested by Dr. Tuttle[10] and others) and suture to the anal margin, because such a flap would of necessity come from above the sinus opening (two in my case), and, when pulled down, would have the sinus discharging behind it directly into the sutured mass, thus vitiating the whole procedure. The treatment before described and now being carried on, though it will take months of patient dressings, and further sinus incision, seems to me the most feasible method, viz. the slitting of fistula to just behind the sphincters, the stimulation of granulation toward the anus and retarding it near the anus, till the fistula becomes a small retro-sphincteric track, thus keeping the muscles intact till the last moment, when perhaps they may be severed with so little gaping that control will not be seriously interfered with. Dr. Tuttle says[11] "the advisability of opening such a track at all is by no means settled," but a search of the literature shows that all the writers, even Goodsall and Miles[12] (who definitely oppose it), admit the occasional necessity of it, and probably all of you have done as Dr. Ricketts, who says[1] "Have severed both sphincters in quite a number of cases for

rectal fistula of various kinds in both male and female without incontinence." The writer feels that with proper precautions it may be justified later in his case.

Someone will raise the question of temporary colotomy as a means of side-tracking the feces and keeping the infection from the anal region, so as to facilitate some of the suggested plastic operations. Theoretically it would help, but practically it is not feasible. It involves two operations of considerable moment, one to make and the other to repair the colotomy. These patients' resistance is much below par and they are not fit subjects for major surgery. Finally few or none of them could ever be persuaded to consent to the operation, and with good reason.

GENERAL CONCLUSIONS.

1. That intra-anal or rectal rupture of coxitic sinus occurs rarely but not with extreme infrequency.

2. That such opening involves probably considerable mixed infection of the joint beyond what would occur if the opening were external.

3. That likewise tubercular infection of the rectum might arise.

4. That intra-anal opening is quite easily treated and much of the mutual risk of infection removed.

5. That intra-rectal opening is in most cases (unless the sinus approaches from low down) too high to turn aside in any way and give an external discharge and consequently the risk must continue.

6. That operating for such purpose is likely to create at once a complete rectal fistula where none existed before, because of the surgical difficulties in the way of securing permanent closure of the internal opening.

7. That it is a very rare and most unfortunate occurrence for such an abscess to point both externally and internally; and external incision should be made if sure that internal rupture has not occurred, but avoided, if possible, if it has occurred, because of the fistula thereby created.

8. That however caused such a fistula is a particularly troublesome one, and the wisdom of trying to better it surgically is fairly debateable ground.

REFERENCES.

[1] Personal letter or interview.
[2] Statement to Dr. A. R. M.
[3] Young: Orthopedic Surgery, p. 80.
[4] Whitman: Orthopedic Surgery, p. 372.
[5] *Ibid.*, p. 373.
[6] Beck: Illinois Med. Jour., Feb., 1911.
[7] *Ibid.*
[8] Wallis: The Proctologist, March, 1911.
[9] *Ibid.*
[10] Tuttle: Diseases of Anus and Rectum, p. 453.
[11] *Ibid.*, p. 383.
[12] Goodsall and Miles: Diseases of Anus and Rectum, p. 138, part I.

THE DOCTOR WHO VOLUNTEERS FOR MILITARY SERVICE IN TIME OF WAR.*

BY CHARLES G. FOSTER, M.D., CAMBRIDGE, MASS.
Surgeon General of Massachusetts.

JUST now a more intelligent interest is being taken in military matters than ever before in this country in time of peace. The Government at Washington wishes to stimulate this interest, and in response to an official suggestion I have prepared this paper, hoping you might be interested in considering what lies before you when you volunteer for service, as some of you certainly will do some day.

How does the work differ from home practice?

One soon learns that in a well-conducted regiment his home work, caring for the sick, is only a small part of his duty. Sanitation, the prevention of disease in its broadest sense, becomes most important.

The first step is the careful examination of recruits, most of whom are young men of just the right age for typhoid, and not too old for measles, scarlet fever or mumps. Some or all of these diseases are practically sure to appear; and the conditions, the crowded way in which the men must live, the lack of bathing and laundry facilities and the ease with which a pest of flies can be bred greatly favor their spread.

A military camp is a city that rises in a half hour from the ground; a city of small, overcrowded houses, with no floors, no cellars, no drainage, no plumbing or water supply, no garbage-removal, no paved or drained streets. Naturally the sanitary problems are different from those at home; and, instead of water and milk, contact and flies become the chief carriers of infection.

As soon as the whole command has been inoculated against typhoid and vaccinated, indeed sooner, the best practicable substitutes for home sanitation must be devised and installed. The water supply must be guarded; as high up stream as possible a place is selected for drawing the drinking and cooking water, and care taken that the bank shall not become polluted. Below this the horses are watered, and still lower washing is done. Sentries will probably be needed at these places to enforce orders.

Of course if the water is known or suspected to be impure, all drinking water must be boiled. Soldiers, especially recruits, do not like this, but in time they learn its importance. Very weak tea makes an excellent compromise.

Shallow ditches should be dug around each tent to divert as much of the surface water as possible; and often quite a system of ditches is necessary.

Opposite one end of the company streets and at a considerable distance, the latrines are dug; a poor method of disposal, but the only one possible in the field. Now, for the first time, we

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encounter the fly problem. Their breeding can be restricted in two ways. First, a shovel can be kept at each latrine, and every man required to throw a little dirt over his dejection before going away, in order to prevent flies from reaching it. A sentry will be needed for a time at least to enforce this, and the duty is not a popular one. Second, the trench may be burned out once or twice a day with straw, sprinkled with oil if you can get it. This kills maggots, sterilizes the trench and leaves such a strong smell of smoke that flies do not like the place. A combination of both methods is advisable.

At the further end of the company streets the kitchens are established, and I advise putting them as near the captains' tents as possible, as this has an excellent effect on kitchen discipline.

Before starting the kitchen fire a place should be prepared by digging a hole about two feet by four, and one foot deep, and filling it with large stones, on top of which the fire is built. This makes a cremator on and under which all garbage and dishwater can be *immediately* disposed of.

Stable manure must be promptly carried away, and the ground where the horses stand occasionally burned over.

Personal cleanliness must be taught and *enforced*. A man thoroughly scrubbed, under orders, by a detail who have been inconvenienced by his dirtiness, is an excellent object lesson.

Every night, toward bedtime, a tub should be put in each street, and a lantern hung beside it. When a man wants to urinate in the night he hates to go all the way to the latrine, especially in a storm, but soon learns to go to the tub.

Every meal prepared in every kitchen should be inspected, not only as to cleanliness but as to cooking. You cannot expect to make every company cook a Parker House chef, but you can insist that he cook such things as beans, oatmeal and stew thoroughly, and you can teach him to protect his food from flies by covering it with mosquito netting or cheese cloth; also not to keep left-over food until it spoils. One thing he *must* learn, namely, never to throw garbage or dishwater on the ground. Do not hesitate to put him in the guardhouse, or fine him if necessary, as the health of the whole company depends upon him.

Even when all these precautions have been conscientiously carried out, in time the ground will begin to grow foul, and camp must be moved, even if only a few hundred yards.

So far our new officer has been doing work for which his professional training has prepared him, but now he encounters something new, the detested "Paper Work," the elaborate system of records and papers which, for a time, will bother him more than everything else put together. Much has been done of late to reduce and simplify this, and to make it more practicable in the field, but a good deal is still necessary for two reasons: first, if justice is to be done between the soldier and the Government, as in cases of pension claims, an accurate medical history must be kept; second, a Medical Officer is accountable for much valuable medical property, which may include not only drugs and dressings, but also horses, wagons and many other articles, for which he gives his receipt to the Government, and is held responsible. He must learn what he is expected to have, how to get it, how to properly care and account for it, and finally how to get it off his hands when he no longer needs it. He will find that Uncle Sam insists that a certain thing must be done in a certain way. He may think he knows several better ways; but if he is wise he will follow the prescribed method and make no complaint. In the same way, when there are several equivalent drugs, Uncle Sam selects one of them and keeps it always in stock, and the officer is expected to use it. All this is necessary for uniformity and efficiency. When the volunteer has grasped this idea, he has taken the first step in his transition from a Doctor to a Military Medical Officer.

He now finds that besides being a physician, a surgeon and a sanitarian, he must be, to some extent, a commander and an executive.

There should be attached to a regiment a detatchment of 24 enlisted men of the Hospital Corps, for whom the senior sergeon will be solely responsible. He will have to enlist them, provide all their various items of equipment, teach them their duties, discipline them, and, in one word, transform them from raw recruits into creditable "Sanitary Soldiers," a new and most excellent designation.

By the time the Surgeon has accomplished this task, he will feel himself quite a military man, will speak with authority, and will probably give his Colonel much good advice.

If the Colonel has confidence in his Surgeon's knowledge and judgment, he will follow his advice whenever possible; but one day he will disregard it, and the Surgeon will learn that the Colonel is the one and only commander of the regiment, and the Surgeon is his medical assistant and counsellor.

When the regiment starts on a campaign or a long march a new set of conditions arises. There is no longer danger of infected camps; the chief causes of trouble will be fatigue, exposure, unsatisfactory camping places, poorly cooked food, change of water and sore feet; but usually a marching command is healthier and more contented than when in camp.

In battle the Medical Officers of a regiment with the 24 men they have trained and, perhaps, with a band of extra litter-bearers, will establish collecting or aid stations in rear of their own firing line, and as near it as they can find fairly good places. When the firing slackens or stops they will collect the wounded, apply first aid dressings, and attach to each one a tag telling his name, company, regiment, the nature of the wound and treatment given. The wounded man is now ready to begin his journey to the rear.

So far we have considered only the work and the medical organization as it exists within every regiment. If there were nothing more, the Medical Department would be of little value to an army. This was the case at the beginning of the Civil War. After a battle an army was practically obliged to stop where it was to attend to its wounded, and even then the inefficiency of the Medical Department caused a vast amount of unnecessary suffering. Many a man lay where he fell until he died of hunger, thirst or exposure. Others were picked up after several days, still alive, and their wounds full of maggots. The condition of some men on reaching a hospital, after a journey of several days absolutely without medical aid, was simply horrible.

In 1862 Major Letterman, a Surgeon of the Regular Army, devised a thoroughly organized system of medical aid. General McClellan, himself a great organizer, saw its value and tried to get it adopted, but the War Department at Washington was hide bound, not to say fossilized, and refused to sanction it. Finally, early in 1864, Congress by law established it, and the system was fully and fairly tried for the first time in Grant's campaign in the Wilderness. It worked wonderfully. The fighting was continuous, day after day; the number of wounded was unprecedented, yet after every battle they were promptly collected and cared for, and the army was free to move on the next day and fight again.

The keynote of this system was a large, independent, departmental organization, under the sole control of the Commanding General of the entire force, and handled by his medical representative, the Chief Surgeon. This idea is the basis of all systems today.

In most armies nowadays the Division is the chief fighting unit. It is a complete army in itself, comprising all the different arms of the service, and able to go anywhere and do anything. With us it consists of about 18,000 to 20,000 men, all told.

Its Medical Department is as follows:

At headquarters there is the Chief Surgeon, a Lieutenant Colonel of the Medical Corps, with two junior Medical Officers to assist him, and a few enlisted men of the Hospital Corps as clerks and orderlies. He deals directly with the Commanding General or with the Chief of Staff.

There are 4 Field Hospitals, each consisting of 5 Medical Officers and 57 men.

These are under the command of a Director of Field Hospitals, who deals directly with the Chief Surgeon. A Field Hospital accommodates 108 patients normally, and half as many more if necessary.

There are 4 Ambulance Companies, each consisting of 5 Medical Officers and 79 men. These are under the command of a Director of Ambulance Companies, who also deals directly with the Chief Surgeon.

There is also a small wagon train carrying reserve medical supplies.

All these, beside the Medical Officers and men attached to regiments, make up a grand total of 978 officers and men with 838 horses and mules.

The Medical Officer commanding this force must be a fine executive and a good soldier. He must understand military operations, and be able to plan his part in a coming action as scientifically as the Chief of Artillery plans his. He must know how to arrange his movements in cooperation with the fighting arms, so as to prevent confusion. For instance, it would never do for a train of ambulances carrying wounded to the rear to meet a regiment of artillery going to the front in a hurry. All these details must be thought out beforehand, and based on information obtained from the Chief of Staff.

The Field Hospital, usually established about 3 miles in rear of the firing line, marks the rearmost limit of the Service at the Front. Back of this begins the Service of the Line of Communications. The Evacuation Hospital, larger and more permanent than the Field Hospital, is established at the nearest railroad or steamer landing. It should have its own large train of ambulances, in order to promptly empty the Field Hospitals, leaving them free to move on with the army. It was here that Letterman's system failed, for it practically ceased at the Field Hospitals.

From the Evacuation Hospital the wounded go by hospital trains or hospital ships, two highly-specialized forms of transport, to the great Base Hospitals in home territory.

Now, Gentlemen, after hearing of this splendid organization, you may wonder why I predicted that sooner or later some of you would be called upon. It is because the organization exists only on paper. Only twice since the Civil War has a complete Field Hospital been got together, by taking officers and men who could be ill spared from a dozen or more different posts. They were strangers to each other and to the work, and just as they were beginning to learn it, they were again scattered.

Last year troops were needed in Texas, and a Division was ordered to concentrate there. There was no such thing as a Division in existence, so it had to be improvised. Nearly every post in the country, as far as Maine and Montana, was stripped of every officer and man who could be spared; recruiting was stimulated; the troops remained in Texas several months, and at the end of that time that one Division, on which we had concentrated our efforts, had not been completed.

The available professional soldiers in this country are, and will probably remain, a mere nucleus for the army that will be needed for a very moderate-sized war, and that is why we amateurs will be needed.

But in the present state of military science, amateurs are of little use. A man must be at least a semiprofessional to be of any value. This

means technical study. Any competent practitioner should quickly become a valuable Assistant Surgeon. A Regimental Surgeon has more to learn; the commander of an Ambulance Company or of a Field Hospital more yet; while a Division Surgeon must be a real medico-military expert.

You would be surprised if you knew the amount of work and study many Militia officers, both in the line and in the Medical Department, are giving. As soon as an officer begins to think things over he realizes that this is necessary, and sometimes gives more time than he really ought to take from his business. Congress has begun to appreciate this, and I believe will soon pass a military pay bill which will wholly or partially make up this loss, and enable many good officers to continue in the service.

The sum and substance of the matter can be expressed in two propositions:

1st. Sooner or later we shall be needed.

2nd. We must prepare ourselves for our new duties.

The transition from Doctor to Medical Officer demands considerable technical study.

I recommend the following books to those who care to look into the matter:

Manual for the Medical Department, U. S.
Army Regulations, U. S.
Field Service Regulations, U. S.
Havard's Military Hygiene.
Handbook for the Hospital Corps, U. S.

For more advanced study:

Morrison and Munson's Troop Leading and Sanitary Service.
Sherrill's Map Reading.
Munson's Sanitary Tactics.
Straub's Medical Service in Campaign.

These can be obtained from W. B. Clarke Co., 26 Tremont Street.

A STUDY OF THIRTY-NINE CASES AS REGARDS THE INTESTINAL LENGTH AND NUTRITION.

BY LORING T. SWAIM, M.D., CAMBRIDGE, MASS.

THE observations recorded here were begun, at the suggestion of Drs. Goldthwait and Brown, to find out whether or not the length of the small intestines had any relation or bearing on general nutrition, and also to find out what the variations in length actually were.

I include here observations made by them at the Harvard Medical School, on subjects for the Surgical Anatomy Course and loaned to me by their kindness. These subjects were chosen for this course because of their leanness and lack of fat tissue.

Twenty-nine autopsies were observed at the Massachusetts General Hospital through the kindness of Drs. Wright and Richardson. All but five of the cases were measured personally and the data on the position of the viscera was made as the abdomen was opened before the organs were disturbed.

In measuring the intestines great care was taken not to put any strain on them and an attempt was made to prevent error by stretching. To this end the measurements were made before the bowel was cut from its mesentery, while still in place, and the same technique was used in every case.

Cases were not selected but were taken as they came, regardless of the causes of death.

We give elsewhere a tabulated record of the observations.

We find in the dissecting room series ten cases, eight males and two females, all very thin, two only having a fair amount of fat tissue. The stomach contracted in several cases with an average lesser curvature of 9 1-2 in., which can be drawn down from its normal position, as given in Piersol's Anatomy, at the level of the first lumbar; in four cases as far as the fifth, thus giving some idea of the variable point to which it may come down. It is also of interest that in two cases the duodenum was free and movable. In both of the cases the lesser curvature could be drawn down to the fifth lumbar.

The figures on the length of different parts of the large intestine show that most of the length is in the transverse colons and sigmoids. The total average is four feet, that of the small intestine being 15 ft. ¾ in. Total, 19 ft. ¾ in. as an average in these ten cases. Taking into consideration the fact that these subjects were chosen for their thinness and lack of fat, one cannot help wondering whether the general length of the intestine is significant, and also wondering how much the lowering of the stomach by pull down of the lesser curvature during life had to do with poor nutrition.

This led to a study of autopsy cases which were better nourished. In studying these figures one finds twenty-nine cases, varying from 21 to 80 years of age, 21 males and 8 females, who died of many and varied diseases; 9 of these had visceral ptosis, 5 males and 4 females; 7 had the tubular type of stomach so often seen in the bismuth x-ray plates; 5 of these had ptosis. In all of these 9 cases of ptosis the pylorous of the stomach was at or within one inch of the umbilicus.

The liver was in its normal position at the costal border in only seven cases. In 2 it was above; in 20 it was from 2 to 4 fingers' breadth below the margin.

The stomach was examined for the length of its curvatures. The average lesser curvature was 7½ in., the extremes being 3 in. to 11 in. The average greater curvature was 18 in. The extremes were 13 to 33 in.

These figures leave no doubt as to the great variability of the lengths of the curves of the stomach.

No constant ratio between the greater and lesser curvatures can be made out, and the type

SERIES OF DISSECTING ROOM CASES.*

NO.	SEX	FAT	STOMACH	LESSER CURVATURE	S. INT.	CÆCUM	TRANSVERSE	COLON	SIGMOID	L. INT.	TOTAL
1	Male	Some	Contracted Upper 2d lumbar	9½ in.	19 ft. 4 in.	6½ in.	27¼ in.	8½ in.	22½ in.	6 ft. 2 in.	25 ft. 6 in.
2	Female	None	Contracted Base 5th lumbar	14 in.	Duodenum free 15 ft. 11 in.	13 in.	29 in.	9½ in.	14 in.	6 ft. 7½ in.	22 ft. 6½ in.
3	Male	None	Contracted 5th lumbar	9½ in.	Duodenum free 10 ft. 4½ in.	3½ in.	17½ in.	8 in.	13 in.	4 ft. 7½ in.	14 ft. 8 in.
4	Male	Some	Contracted Bottom 1st lumbar	8½ in.	18 ft. 8 in.	8 in.	25 in.	10 in.	19 in.	5 ft. 10½ in	24 ft. 6½ in.
5	Male	None	Top 5th lumbar	10 in.	13 ft.7 in.	4½ in.	15 in.	10 in.	9 in.	4 ft. ½ in	17 ft. 7½ in.
6	Female	Fat	Top 4th lumbar	9 in.	10 ft. 11½ in.	6 in.	15 in.	7½ in.	10½ in.	4 ft.	14 ft. 11½ in.
7	Male	Some	Top 5th lumbar	13 in.	23 ft. 3½ in.	7 in.	26 in.	8 in.	14¼ in.	6 ft. 8¼ in.	29 ft. 11¾ in.
8	Male	Fat	Base 2d lumbar	7½ in.	11 ft. 11½ in.	5½ in.	18 in.	8 in.	16¾ in.	4 ft. 7¾ in.	16 ft. 7¼ in.
9	Male	Some	3d lumbar	7½ in.	16 ft. 6½ in.	6 in.	34 in.	9½ in.	11¼ in.	4 ft. 10¼ in.	21 ft. 4¾ in.
10	Male	None	2d lumbar	9¾ in.	11 ft.	6 in.	20½ in.	9½ in.	10½ in.	4 ft. 6¼ in.	15 ft. 6¼ in.
	Average			9½ in.	15 ft. ¾ in.	6½ in.	22¾ in.	8¾ in.	14 in.	4 ft. 6 in.	19 ft. ¾ in.

* In each case the lumbar vertebra in the stomach column means the point to which the lesser curvature could be pulled down.

SERIES OF AUTOPSY CASES.

NO.	SEX	AGE	AMT. OF FAT	VISCERA	LIVER	STOMACH	S. INT.	L. INT.	TOTAL	DEATH
1	Male	65	Small	Normal	Costal Border	Normal. 8–19 in.	15 ft.	4 ft. 6 in.	19 ft. 6 in.	Embolus
2	Male	28	Small	Low	2 fingers below C. B.	Low. 7–20 in.	18 ft. 4 in.	5 ft. 1 in.	21 ft.5 in.	Chronic myelitis nephritis
3	Male	60	Small	Distended	Costal Border	Low tubular. 8–33 in.	25 ft. 5 in.	6 ft.	31 ft. 5 in.	Carcinoma in duodenum
4	Male	52	Large	Normal	2 fingers below C. B.	6–18 in.	20 ft. 6 in.	5 ft. 3 in.	25 ft. 9 in.	Acute endocarditis
5	Female	80	Fair	Normal	1 finger above C. B.	—	10 ft. 6 in.	3 ft. 8 in.	14 ft. 2 in.	Ulcerative cholecystitis
6	Male	53	Fair	Low	4 fingers below C. B.	Low. 9–20 in.	22 ft. 6 in.	8 ft. 5 in.	30 ft. 11 in.	Cirrhosis of liver.
7	Male	75	Small	Low	2 fingers below C. B.	High. 6–13 in.	14 ft. 4 in.	5 ft. 11 in.	20 ft. 3 in.	Broncho-pneumonia
8	Male	63	Small	Normal	2 fingers below C. B.	Normal. 7–16 in.	15 ft. 7 in.	3 ft. 8 in.	19 ft. 3 in.	Myocarditis
9	Male	42	Small	Low	2 fingers below C. B.	Low. 7–16 in.	14 ft. 1 in.	5 ft. 2 in.	19 ft. 3 in.	Primary anæmia
10	Male	42	Fair	Low	2 fingers below C. B.	Normal. 8–19 in.	18 ft. 5 in.	4 ft. 8 in.	23 ft. 1 in.	Pneumonia
11	Female	48	Fair	Normal	Costal Border	Normal. 7–20 in.	17 ft. 4 in.	6 ft.	23 ft. 4 in.	Fibroids. Post-operative
12	Male	30	Small	Slightly low	5 fingers below C. B.	Normal. 7½–29 in.	20 ft. 7 in.	4 ft. 7 in.	25 ft. 2 in.	Chronic myelitis nephritis
13	Male	59	Fair	High	2 fingers above C. B.	High. 3–13 in.	17 ft. 9 in.	4 ft. 9 in.	22 ft. 6 in.	Cirrhosis of liver
14	Male	57	Small	Normal	Costal Border	Normal. 7½–20 in.	23 ft. 4 in.	5 ft. 9½ in.	29 ft. 1½ in.	Pneumonia
15	Male	45	Fair	Low	1 hand below C. B.	Low tubular. 7–15 in.	16 ft. 7 in.	5 ft. 3 in.	21 ft. 10 in.	Syphilitic aortitis
16	Male	54	Small	Normal	Costal Border	Normal. 7–18 in.	14 ft. 1 in.	5 ft. 3 in.	19 ft. 4 in.	Septicæmia
17	Female	62	Large	—	Costal Border	9–20 in.	21 ft. 8 in.	6 ft. 6 in.	28 ft. 2 in.	Pneumonia
18	Female	31	Large	—	Costal Border	8–17 in.	23 ft. 2 in.	4 ft. 8½ in.	27 ft. 10½ in.	Tetanus
19	Male	45	Small	—	2 fingers below C. B.	10–21 in.	19 ft. 6 in.	5 ft. 3 in.	24 ft. 9 in.	Aneurisim aortia
20	Male	46	Small	—	1 hand below C. B.	11–23 in.	24 ft.	6 ft. 9 in.	30 ft. 9 in.	Syphilitic aortitis
21	Female	43	Fair	Low	2 fingers below C. B.	Tubular. 8–13½ in.	20 ft. 6 in.	4 ft. 8 in.	25 ft. 2 in.	Chronic myelitis nephritis
22	Female	40	None	Low	3 fingers below C. B.	Low tubular. 6½–13	16 ft. 7 in.	4 ft. 4 in.	20 ft. 11 in.	Cirrhosis of liver
23	Male	72	Good	Normal	4 fingers below C. B.	Sagged. 9¾–21¾ in.	22 ft. 9 in.	6 ft.	28 ft. 9 in.	Abscess of liver
24	Male	48	Small	High	1 hand above C. B.	High. 6½–16½ in.	16 ft.	4 ft. 8½ in.	20 ft. 8½ in.	Cirrhosis of liver
25	Female	71	Small	Low	3 fingers below C. B.	Low tubular 8–14 in.	17 ft. 5 in.	5 ft. 1 in.	22 ft. 6 in.	Terminal infection
26	Male	55	Small	Normal	1 hand below C. B.	Tubular. 5½–15½ in.	21 ft. 10 in.	6 ft. 2 in.	28 ft.	Thrombosis. Uræmia
27	Male	59	Large	Normal	4 fingers below C. B.	9½–22 in.	25 ft. 10 in.	5 ft. 8 in.	31 ft. 6 in.	Blank
28	Male	50	Fair	Normal	3 fingers above C. B.	High. 6½–13¾ in.	25 ft. 8 in.	4 ft.	29 ft. 8 in.	Blank
29	Female	21	Small	Low	2 fingers below C. B.	Low tubular. 7–16½ 7½–8 in.	21 ft. 7 in.	4 ft. 7 in.	26 ft. 2 in.	Perinephritic abscess
			Average				19 ft. 3 in.	5 ft. 3 in.	24 ft. 6 in.	

of stomach apparently makes no difference, as the ratio in both types was 1-24.

The small intestines showed great variations in length also. Measured from the pyloric opening to the ileocæcal valve, the extremes were 10 ft. 6 in. to 25 ft. 10 in. Of the 29 cases 15 were under 20 ft. long, 14 were over, 5 were under 15 ft.; 10 were between 15 and 20 ft.; 11 were 20-25 ft.; and 3 were over 25 ft., the average being 19 ft. 3 in. According to Treves, the average length in the male is 22 ft. 6 in. and 6 in. more in the female, the extremes being respectively, 31 ft. 10 in. and 15 ft. 6 in. for the male, and 29 ft. 4 in. to 18 ft. 10 in. in the female.

The question as to the relation between the length of the small intestines, as the absorbing part of the alimentary canal, and the amount of the subcutaneous and peritoneal fat leads to these figures.

Small intestines' length.	Amount of fat.
Under 15 ft.	4 small, 1 fair
15-20 ft.	1 very small, 5 small, 4 fair
20-25 ft.	6 small, 3 fair, 3 large
Over 25 ft.	1 fair, 1 fat

Condensing this we find:

Under 20 ft.	10 small, 5 fair
Over 20 ft.	6 small, 4 fair, 4 large

One finds there are no cases under 20 ft. which had more than a fair amount of fat tissue, with a preponderance of these small, while those over 20 ft. have an equal number of really fat persons and a preponderance of fair and fat over the small. This would lead one to think that probably the greater the length of the small intestines, the more likely is the person to be well nourished, although from the recent article in the *Johns Hopkins Bulletin* of May, on "The Resection of Intestines in Dogs," one would judge that the nutrition depends more on the functioning than on the length itself.

The large intestines, measured from the ileocæcal valve to the anus, show figures as follows:

Twelve were under 5 ft. in length, 17 were over; 2 were between 3 and 4 ft., 10 between 4 and 5 ft., 10 between 5 and 6 ft., and 7 over 6 ft., with the extremes 3 ft. 8 in. and 8 ft. 5 in.

Treves gives these, in men, averaging 4 ft. 8 in. and 2 in. less in women. Extremes, 4 ft. 6 in. and 3 ft. 3 in.

The relation between the small intestines and the ptosis cannot be made out, but it is interesting that of the 9 cases of ptosis, 3 had between 4 and 5 feet of large intestines, and 6 were over 5 ft., of which one-half had large intestines 6 ft. long.

In looking over the histories of these cases it seemed of interest to study them from the point of view of constipation and gastric symptoms. Ten cases gave a history of gastric trouble. Of these 10 cases 3 were cases of visceral ptosis. Of the 29 cases, 10 were chronically constipated. in 11 cases no mention was made, and only 8 were regular.

Considering the constipated cases, 3 had ptosis, with long, large intestines. Of the ptosis cases, 9 in all, 3 were constipated, 2 were regular, 4 had no mention, 6 of 9 had only a small amount of fat, 3 had fair, not one had a large amount.

I wish to draw attention to one case in particular, No. 22, a woman 40 years old, 5 ft. 6 in. in height, of slender frame, emaciated, with a small amount of fat at autopsy, a long thorax, viscera all low, the liver 3 fingers' breadth below the costal margin, a gall-bladder which was literally upside down, large and hanging free at its fundus and full of viscid fluid. The kidneys were low, but not markedly movable. The stomach was low, with the pylorous at the umbilicus and tubular in type.

The transverse colon was 2 in. below the umbilicus; the ascending colon was not attached at the hepatic flexure, but was all crowded down into the iliac fossa on the right. The cæcum was large and distended. The descending colon had no mesentery, and the splenic flexure was high under the ribs. The transverse colon ran from the right iliac fossa to the splenic flexure, then down to a large, loose sigmoid.

The autopsy report of death was cirrhosis of the liver, right hydrothorax, pleuritis and ascites.

Now let us read her history:

August 26 she entered the hospital, with mediastinitis, hydrothorax and hydroperitoneun.

Past history.—One year before she had gastritis, one week before entrance she had had jaundice for five or six days. Her abdomen often became bloated for one or two days, relieved by salts. Two months before this swelling of her abdomen had become marked, and increased to three weeks before entrance. Since then has decreased with the use of salts. She became short of breath and could lie only on her right side. The chest was found full of fluid and was tapped several times, shortly leaving the hospital. She was seen Nov. 11, 1911. Note says no recurrence of fluid, and again Jan., 1912, abdomen dull with fluid wave. Shortly after this she entered the hospital again, complaining that her uterus came down and a sac came out of the vagina, with marked dragging down pain in the left side of her abdomen. The only way to keep it up was by a bandage.

The records state that ever since entrance the abdomen had been bloated but became flat after active purge, resulting in severe watery catharsis.

Bowels never moved without medicine. She was tapped repeatedly, but the fluid reaccumulated as fast, and the patient gradually failed and died.

The urine reduced Fehlings but gave no fermentation test for sugar.

This woman had visceral ptosis to a marked degree, as found at autopsy, probably of long standing, if not congenital. The interesting

question arises: How much of her trouble may not have come primarily from this condition, with auto intoxication, being continued from the alimentary tract, over-work of the liver in handling of the poisons, poor functioning of all the abdominal organs from mal-position and interference with proper nerve and blood supply, due to stretching.

In conclusion:

1. Ptosis is present probably in many more cases than we realize, 9 out of 29.

2. The size of the stomach varies enormously and the tubular stretched stomach is present in most of the cases of ptosis—6 out of 9—and that the lesser curvature can be greatly stretched down, this series shows.

3. The small intestines vary greatly in length, 10 ft. 6 in. to 25 ft. 10 in., averaging 19 ft. 3 in., the length having only slight effect on the nutrition, with a tendency to more fat the longer the intestine and vice versa.

4. The large intestines vary also, averaging 5 ft. 3 in., extremes 3 ft. 8 in. to 8 ft. 5 in.

When the stomach is low the large intestine is apt to be longer and the cæcum large and pendulous, the greatest length being in the transverse colon and sigmoid.

5. The total average length of the entire intestines is 24 ft. 6 in.

6. A rather significant fact is that not only the hollow viscera are displaced, but even more often the solid, such as the liver, which was below the costal border in 20 cases.

This paper proves nothing; it merely points to several significant facts, but I feel that with a much larger number of observations and cases more definite information could be had, which would materially increase our scanty knowledge of the visceral conditions which are possible, and may help to explain some of the abdominal symptoms found clinically.

A PRIVATE OBSTETRICAL RECORD.*

BY JAMES R. TORBERT, M.D., BOSTON.

THE appended private obstetrical record card is offered not as any new proposition, but as a record which is fairly comprehensive, can be easily carried about, and is of convenient size for filing in an office desk.

A word of explanation was thought advisable and this has been extended to the emphasis of certain points in the handling of obstetrical cases which appeal strongly to the writer There are probably other records on the market more complete and better adapted to institutional work, this one is intended for private cases and with the hope that it will be of service to the busy general practitioner. The idea has been to cover the case from the time of conception to the final discharge of the patient at the end of convalescence, and the writer is satisfied that the record is fairly comprehensive and suitable for the intelligent care which should be given every pregnant woman.

In line with the great advances of late years in the practice of obstetrics, the increasing number of problems continually met, it is being more and more impressed upon us the importance of thoroughness and attention to detail in the handling of our obstetrical cases.

A concise history of past conditions, with a few minutes' talk on what to and what not to expect during the pregnancy, will many times make a great difference for the better with the happiness of that individual during her nine months of anticipation. Contingencies arising during the course of the pregnancy are noted from time to time, with their treatment and results, and it is surprising how in a comparatively few records much concise, interesting and important information is obtained.

Only of late has the importance of antepartum examinations been realized, and as in the great majority of cases the date of the expected confinement is computed with no more than from two to five days variation, the importance of this examination naturally increases with the proximity of labor. The necessity of an intelligent antepartum examination is more and more impressed upon one in the conduct of an indoor maternity clinic. At the Boston Lying-in Hospital on case after case which comes in after labor has been of long duration, we are compelled to do operations which we never should elect, and which cases with a careful antepartum examination would never have gotten into such a condition.

Lack of time is the frequent reason ascribed for failure to make this examination. The answer is that a thorough antepartum examination can be made in fifteen minutes, and surely this is not too much to ask on one of these cases?

A knowledge of abdominal palpation is necessary to good results in this work, and this is only obtainable by practice in handling of these cases.

It is really astonishing how much can be learned by one familiar with this work. More attention should be given the teaching of palpation in our clinics, it being only from the actual handling of the cases that the size of the baby, the relation of the presenting part to the maternal pelvis, and many other important facts can be ascertained.

This record is really three cards pegged together, any of which may be detached. The first card contains space enough at the top for enough data to fill out the birth certificate; this is of great convenience and gives the attendant a permanent record of the legal requirements. At the end of the puerperal card is the date for the time of reporting the birth certificate, this serving as a reminder which is often necessary. The remainder of the card is a record of the pregnancy up to the time of the antepartum examination, which we try to make as near the date of the expected confinement as possible.

* Read at the Boston Obstetrical Society, October 24, 1911.

The second card contains on one side the result of the antepartum examination, and on the reverse side the record of the labor.

The third card contains a record of the convalescence, and on the reverse side is a copy of the clinical chart of the mother for a period of three weeks, also a brief record of the baby at the time of discharge.

At the first visit of the patient there are a few points worth emphasizing:

1. The past medical history of the patient; here we call attention to any disease which may have left an imprint upon the patient's system. Among these are those affecting the heart, as rheumatism, tonsillitis, diphtheria; any disease of the nervous system as indicated by previous neurological treatment; tuberculosis, pulmonary or bone; any renal involvement, etc., etc. Attention to this subject will often avert eventual trouble, and with early treatment instituted can be easily controlled.

2. The history of previous labors, the number, character, and the results to mother and infants. Previous disaster to the infant leads to much more care upon the part of the medical attendant, causing him at the proper time to make a detailed examination of the maternal pelvis, and to ascertain fully the cause of the previous disaster.

3. The condition of the patient since the beginning of pregnancy should be gone into in detail, especial attention called to the hygiene of pregnancy, a subject by the way too frequently neglected. The importance of the three eliminative functions, kidneys, skin, and bowels should be explained in a common sense sort of way, thus getting the early cooperation of the patient on this most important matter, for the proper conduct of the pregnancy.

The various ailments which may arise are explained with the proper remedies to be applied and the importance of her communicating with the physician in case she is disturbed by symptoms arising of which she has not been informed is here emphasized. In passing, another point arises which is of sufficient interest, in that calling attention to it frequently is the means of saving a great amount of the attendant's time: the kindly interference and advice to those patients by their friends, relatives, etc. A patient, if she wishes, is always able to forestall this advice by the statement that her physician has gone into detail in regard to all such matters.

The blood pressure is always taken at the first visit, and subsequently if the urinary findings or symptoms arise which call attention to derangement of elimination. It is again taken at the time of the antepartum examination, and in the short time of the usage of this instrument, several cases in private, and countless cases on the maternity clinic have been discovered where a high blood pressure existed and proper treatment being instituted the pressure came down and the severer type of toxemia averted without question.

R. M. Green has done an interesting bit of work on this subject which is well worth perusing.

The writer cannot agree with the obstetrical author who is able to detect a high blood pressure by digital examination of the pulse.

The urine examinations on the record are systematized and numbered from one to twelve with appended dates; if the time for examination shows the specimen not to have been received, her attention should be called to the matter, and by having a condensed record as here, this is an easy matter and one well worth taking the pains to see carried out.

As regards the antepartum examination the main point to be emphasized is its extreme importance. Men differ greatly in the form used. The one appended has filled the conditions useful to the writer. The examination is practically a complete physical examination plus the obstetrical examination. The external pelvic measurements are indicated as regards suggestions to contractions inside the pelvis. The internal pelvimetry is ordinarily done without an anesthetic but if it is indicated an anesthetic should be administered and a more critical examination carried out. The relation of the presenting part of the infant to the brim of the pelvis can be readily mapped out, and in doubtful cases a combined vaginal and abdominal examination with the examiner's hand or the assistant's hands on the head will frequently be able to cause a semi-engaged head to readily come into the pelvis.

The writer would call attention to the importance of examining the bony outlet of the pelvis. This can be readily done by preferably a Williams' pelvimeter, or the ordinary pelvimeter, and the transverse and antero-posterior diameters of the outlet give an absolute indicator as to the existence of the male type of pelvis. This type is not uncommon, and undiscovered, results in lacerations of the maternal soft parts which are extremely difficult if not impossible to repair. At the time of the vaginal pelvimetry many useful points can be made out, especially the existence of that obstetrical terror, placenta previa.

At the Boston Lying-in Hospital the writer has repeatedly done this entire antepartum examination in from ten to twenty minutes, and with a little practice on ten or a dozen cases much information about a case can be obtained.

With Dr. J. B. Swift, Jr., the writer has recently gone over some 700 cases in the pregnancy clinic of the Boston Lying-in Hospital. The results have been interesting and instructive. Out of the 700 cases almost an even 100 have had pathological lesions, minor and major, where corrective measures were instituted and the future record of the patient carefully watched. This is a proportion of one in seven. Some of the pathological conditions noted were as follows: Albumenuria with toxemic symptoms in 22 cases. We were able to trace the sub-

PREGNANCY
LABOR
Labor began
Results of Examination
Progress of Labor
Termination
Operation
Duration of Labor
Perineum
Hour of Leaving
Remarks
First Visit
Birth at
Child
Indication
Cords
Membranes
Condition
Name
Birthplace
Age
Husband's Name
Date of last Catamenia
Past History
Previous Labors
Condition in Present Pregnancy
Blood Pressure
Treatment
Address
Nurse
Birthplace
Occupation
Confinement Expected
Telephone
INFANT
Sex
Weight
Condition at Birth
Mode of Feeding
Condition of Cord
and Circumcision
Remarks
Weight 10th day
PREGNANCY (Continued)
URINE EXAMINATIONS
DATE
Specific Gravity
Albumen
Sugar
Urea
Microscopic Examination
Treatment
ANTE PARTUM EXAMINATION
Date of Examination
Confinement Expected
EXTERNAL EXAMINATION
Obstetrical Diagnosis
Pelvic Measurements
Presentation
Fetal Heart
PHYSICAL EXAMINATION
Lungs
Heart
Blood Pressure
Kidneys
INTERNAL EXAMINATION
Vagina
Cervix
Perineum
Internal Conjugate
Symphysis
Diameter of Outlet
Anterior Posterior Diameter of Outlet
Type of Pelvis
Additional Notes
PUERPERIUM
Breasts
Uterus
Bowels
Bladder
Baby
Remarks
Final Examination
Date
Involution
Position
Lochia
Cervix
Perineum
Breasts
Nipples

sequent course of most of these, and there was but one fatality—this patient did not follow the explicit instructions given and failed to report at the hospital when ordered. Small pelvic measurements, indicated by external measurements and confirmed by subsequent internal examination in 23 cases. Of this number 4 cases came to Caesarian Section, 4 cases to a difficult forceps operation with damaged soft parts, 6 cases were normal deliveries with small babies. These occurred in the hospital where they were carefully watched in the early stages of labor, and where the conditions were such that we were prepared to interfere under the most favorable conditions, if necessary. The remainder of this group were later applicants whose labors have not as yet come off. Cases of this type to be delivered at their homes receive at the time of examination a card marked in red ink and at the commencement of labor are at once seen by the Out-Patient House Officer on duty at the time. The more marked cases of pelvic deformitory are admitted to the hospital before the onset of labor. Four cases of heart lesions; 7 cases of syphilis and other skin affections; 7 cases of extensive varicosities of the extremities; 4 cases of breast abnormalities; 5 cases of cystitis, 2 of which were gonorrheal in origin; 5 cases of poor general condition; 1 case of prolapsed uterus; 1 case of hydramnios; 3 cases of tuberculosis; 3 cases of antepartum hemorrhage; 2 cases of early rupture of the membranes; 1 case of vulval abscess; 2 cases of multiple pregnancy; 3 cases of breech presentation; 1 case of early intra-uterine death. This clinic fills a much-needed want in the community, its possibilities are unlimited. Of late it is being used with much success for teaching purposes.

To continue with the card, the results of the examination made before the onset of labor may be compared with those found at the antepartum examination. The results are often most instructive.

Prognosis is important in the final outcome of the case, and if operative interference is indicated the cause of such interference is put down at the time. Attention is called to the placenta and membranes, the mode of delivery, and especially as to the complete removal of both. They should be carefully inspected, and if there is a question as to their entire removal this should be noted on the record, and whatever treatment decided upon should be instituted at once. Vaginal lacerations should be carefully noted, with their treatment and the type of suture material used. We do not inspect cervical lacerations unless at the end of a manual dilatation or in case of cervical hemorrhage.

The condition of the uterus is carefully watched, and given a case where there have occurred nine uterine contractions after the expulsion of the placenta, the placenta and membranes entirely removed, we have as yet to see post-partum hemorrhage. The uterus is always examined by the attendant before leaving the case, together with the maternal pulse; this is recorded in the chart. The infant's condition is looked into, cord for hemorrhage, general condition as evidenced by its activity.

The puerperal record may be looked after by the nurse, if desired, and easily abbreviated notes on the various functions are recorded. If the condition of the infant demands more space an extra card, which is of the standard size, may be used and filed with the record.

The final examination of the patient is important, and many trivial ailments can be corrected at this time, which if allowed to go on, will in a number of cases cause the patient discomfort, if not actual harm. The nurse fills in the clinical chart for the three weeks or more, and this is of frequent value in subsequent pregnancies. A short resumé of the infant is appended.

The cards may be obtained of F. H. Thomas Co., Boston, Mass.

Medical Progress.

PROGRESS IN OBSTETRICS.

BY ROBERT L. DE NORMANDIE, M.D., BOSTON.

TREATMENT OF ACUTE INVERSION OF THE UTERUS.

PHILLIPS[1] feels that the treatment advised by almost all writers, that is, immediate replacement of the inverted uterus, in all cases is not the best advice. From his analysis of the cases, he feels that the mere displacement of the uterus should be ignored until the shock, which is so frequently present, has been satisfactorily treated. The shock, he says, is the most important symptom. It is present in the majority of cases, and in some cases it is very profound, and in not a few does it cause death within an hour or two of the onset. On the other hand in a considerable number of cases, there was no shock at all. Pain and hemorrhage are the other symptoms. The shock is produced during the actual process of inversion. It is well marked immediately after the accident, but unless severe enough to have caused death, it gradually disappears even though the uterus is left in an inverted state. During the process of reduction of the inversion, shock is also caused, even when the patient is anæsthetized. The shock so produced may be sufficient to kill the already collapsed patient. Phillips has collected from English literature 184 cases of acute puerperal inversion, and of these 43 died, 23.4 per cent. The mortality given by various authors varies from 40-50 per cent. In 79 cases in which the uterus was immediately replaced, in the presence of marked shock, over 30 per cent. died. In 23 cases where there was no shock, immediate replacement was followed by recovery. In 11 cases there is no note as to the presence or absence of shock. Immediate replacement was possible in

these cases. In 17 cases death occurred with the uterus unreduced. In 47 cases the uterus was not reduced at once, but was allowed to become a chronic inversion, and treated later in various ways with the recovery of the patient. In two other cases death was due to septic infection. In two cases the body of the uterus was twisted off by the attendant and yet the patient recovered. Of the 43 deaths, 41 took place within a few hours. Immediate replacement of the uterus is followed by fatal results in 21 per cent. of the cases. On the other hand, in the cases which were allowed to become chronic, only two died less the five per cent. Phillips advocates an intermediate course. He advises that the shock, if present, should be treated by saline infusion, injection of pituitary extract and morphia. Then when the patient has rallied she should be anæsthetized and the uterus replaced. At the same time he advises repeating the saline infusion, and any other stimulating measures which may be considered necessary. Phillips says the earlier the reduction the greater the ease with which it is effected, but the delay of a few hours does not increase the difficulty materially, whereas time is required to revive the collapsed patient. If there is no shock the uterus can be replaced immediately, but even then the patient should be anæsthetized and a precautionary saline infusion given.

The first case he reports he saw four hours after delivery. She was then very white and cold, with a small feeble pulse of 130. She was given a saline infusion, a quarter grain of morphia, wrapped in hot blankets and sent to the hospital. A few hours later, having recovered, she was anæsthetized. The inverted uterus was pulled outside the vagina, thoroughly washed, and then reinverted without any difficulty. The patient made an excellent recovery. The second patient had also marked shock, but no bleeding. No attempt was made to replace the uterus, which lay in the vagina. She was given a hypodermic injection of morphia. She soon became drowsy and the pulse improved markedly. She was sent to the hospital where, five hours later, she was anæsthetized and the uterus replaced with more difficulty than was experienced in the first case. Manipulation for ten minutes produced a great deal of shock. She gradually recovered and made a good convalescence. The third case occurred after an expulsion of the child unassisted by the doctor. The adherent placenta and the whole half of the uterus lay outside the vagina. The doctor found the patient very collapsed, just as if she had had a severe hemorrhage, and yet there was only a little bleeding from the torn perineum. The uterus was pushed back into the vagina without any anæsthesia. This caused the patient great distress, and the doctor desisted, and the patient appeared to be dying, with no pulse at the wrist. Phillips came to the case forty minutes after the inversion and found the patient very collapsed, with a feeble pulse of over 150. Her condition was much more serious than the other two cases. She was infused and a quarter grain of morphia added. At the end of forty minutes the patient's condition was greatly improved. She was much warmer and had a fair pulse of 104. A short while later she was taken into the hospital, but even then the condition did not warrant operation. The next morning she was considerably better, and some twenty hours after inversion had occurred she was anæsthetized, infused with saline, pituitary extract, and the uterus replaced. This required a good deal of pressure from twelve to fifteen minutes. Then she made an excellent recovery and had slight bleeding, but her condition never gave cause for anxiety.

PYOSALPINX REMOVED BY ABDOMINAL SECTION DURING PUERPERIUM.

Ferguson[2] distinguishes two kinds of cases in this division. First, those originating before labor, and becoming exacerbated in the puerperium, and second, those commencing in the puerperium from direct infection. He regards the first class of cases undoubtedly as most amenable to operative interference, for then the condition is more local. In the second class of cases, the complication is generally a mere incidence in a more general infection. As to the question of operating on these cases, Ferguson says it is better to avoid operating during the acute symptoms if it can be avoided. Assuming that there is pus in the tube, Ferguson says that he would not wait indefinitely in the hope of the pus becoming sterile in a puerperal case. He waits, if possible, until the more acute symptoms have abated, and then operates, if the physical signs and symptoms still call for interference. The case he records is a multiplara who had a premature labor and who in her fifth month of pregnancy complained of a dull, aching pain on her left side. The puerperium for the first five days was normal, when on the sixth day she began to complain of severe pain over the left iliac fossa. Temperature, 102. From the sixth to the ninth day she varied from 100 to 102 and her pulse stayed about 104. From the ninth to the seventeenth day she began to improve, and gradually the more acute symptoms subsided. On the nineteenth day when the acute symptoms had subsided, Ferguson opened the abdomen and found the left Falliopian tube distended to the size of a thumb, with dense adhesions around it. Separating these adhesions, thick yellow pus escaped. The tube and ovary on that side were removed, and because of the escape of pus was drained through the vagina. The abdominal wound was completely closed in the usual way. The wound became infected, but Ferguson says she made a satisfactory recovery.

SIZE OF THE UTERUS IN HYDATID MOLE.

Briggs[3] reports the analysis of twenty-three cases of hydatid mole founded upon eighteen years of clinical observation on cases occurring in his own practice. From this study he comes to the conclusion that undersize, not oversize, of the uterus is the more prevalent disproportion in cases of hydatid mole. Of the twenty-three cases, one corresponded in size with the size of the patient's pregnancy. In fifteen cases the uterus was below the normal size. In four the uterus was larger than normal, and in two there was a choreo-epithelioma, one of which was undersized and one oversized. Briggs gives the clinical history of these cases. In these histories the irregular loss of blood after the pregnancy was supposed to have begun is a characteristic symptom, as is also the increased tension of the uterus. In only a few cases was it necessary to do a manual extraction. Briggs treatment was conservative in the great majority of cases, that is, either he put in a bougie, shortened according to the size of the uterus, or allowed nature to expel the mass. Briggs has followed up his cases remarkably well, and the number of well, healthy children that have been born to these patients after hydatid mole is large, and greatly upsets the previous conception of the tendency that hydatid mole has to become malignant. He summarizes his article by saying that it is unlikely that a series of twenty-three cases in which the features and associations of hydatid mole are otherwise so extensively embodied and confirmed, will prove to have been exceptional in the prevalence of the one clinical feature of undersize of the uterus. Undersize of the uterus in sixteen cases, with frequent quiescence and occasional recedence of the mole in a series of twenty-three, widens the differential diagnosis in cases of abortion and intrauterine death of the fœtus and modifies the current and contrary statements. In the oversize of the uterus, the part played of a concealed intrauterine hemorrhage is apparently higher in frequency and greater in effect than has been generally stated. The tendency of cases of hydatid mole to malignancy comes out in the series with a diminished ratio. The article has several illustrations which are most interesting.

PUBIOTOMY IN A FACE PRESENTATION.

Morse[4] reports a case of pubiotomy which he did in a generally contracted rachitic pelvis, with the chin posterior. He attempted to change the chin from a posterior to an anterior position but was unable to, and he then had recourse to pubiotomy. The pubiotomy was done in the usual subcutaneous method. A living child was obtained, and the puerperium was normal, except for the fact that the patient persisted in having incontinence of urine. Examination of the vagina showed a vesico-vaginal fistula, which healed spontaneously in two weeks. The patient, except for this complication, made a normal convalescence. Morse has been able to find reported only four other cases of pubiotomy with face presentations. He sums up his article in the following conclusions:

First, in cases of face presentations where the chin is directed anteriorly, and the pelvis is normal, spontaneous delivery may be expected. When indications for terminating labor present themselves, the question of a pubiotomy will arise. He advises that the saw be ready for pubiotomy, the forceps then applied, and if extraction is not possible, he advises the performance of pubiotomy.

Second, if the chin is directed obliquely posterior conversion should be attempted as soon as the condition of the cervix permits. The usual procedures should first be carried out in order to try to attempt to correct the position. If all attempts fail, then he advises pubiotomy, and he says that pubiotomy should replace craniotomy in all face presentations, except where the child is already dead or in so serious a condition as to exclude a radical operation. Pubiotomy is contra-indicated in face presentations, where the conjugate vera measures seven and a half centimeters or less, or when the woman presents signs of infection or attempts at delivery have been attempted by those whose technic is open to question. Finally, pubiotomy must be regarded as an operation to save the child, and should be limited to those cases where there is a reasonable probability of obtaining a living offspring. He considers pubiotomy an absolutely unjustifiable operation, even though there has been no maternal mortality in the Johns Hopkins clinic, if the child is in such bad condition at the beginning that it will not survive extraction.

FIFTY FATAL CASES OF PUERPERAL FEVER.

Stowe[5] analyzes the fifty fatal cases of puerperal sepsis, occurring at the Cook County Hospital within twenty-nine months. Many of these cases were treated indifferently or neglected, and were finally sent into the hospital in a hopeless condition. Although it is commonly supposed that the majority of fatal cases of sepsis can be traced to midwives, in this series, in twenty-one of the cases a physician was in charge, and the midwife was in charge of twenty, and in six the patient had attempted an abortion upon herself. While in the hospital all patients were placed upon energetic stimulation, the treatment consisting of strychnia, digalen, alcohol. Access to sunbaths were possible in only a limited per cent. Salines by rectum and hypodermoclysis, adrenalin, antistreptococcic serum and collargol were used in several cases. Stowe calls attention to three general fundamentals which have a decided influence in the treatment of puerperal sepsis. All local forms of infection are self-limited. They tend to spontaneous recovery and require no

intrauterine therapy except in the presence of hemorrhage. The treatment is decidedly watchful expectancy. Second, by the employment of many common methods of treatment, a local type of sepsis may be converted into a virulent and fatal condition. A curette, septic fingers and intrauterine douche are directly responsible for many deaths. Third, our methods of diagnosing septicæmia in the early stages are uncertain. Before we are able to diagnose the condition, the invading process has reached a stage not amenable to local treatment, and the patient frequently succumbs to the toxæmia. Stowe insists that abortion and labor at term are necessarily surgical procedures and are to be treated upon strict surgical principles.

A septicæmia associated with good drainage and uterine retraction is not to be feared, and these conditions are treated best by ergot and Fowler's position. Instrumental dilatation of the cervix in septic abortion is conducted with great harm. If it is desirable to dilate, packing is by far the best treatment. If the septic process has extended to the parametrium or peritoneum the emptying of the uterus by the curette is a calamity. The instrument has no place in puerperal sepsis. Stowe feels that if the infection has spread to the parametrium or peritoneum it is best to leave the uterus alone, whether it is empty or not. The use of a curette after a full term delivery is never to be sanctioned. The danger from retained membranes has been overestimated, and he says that attempts to remove retained membranes from the uterus are often attended with more danger than their retention. If hemorrhage is present, while the membranes are completely retained, and the patient's aseptic environment is satisfactory, the attempt may be made to remove them. Otherwise, with these two exceptions, it is preferable to give ergot and rely upon the natural powers. He comes to the conclusion that uterine irrigations more frequently used by the general practitioner are useless and dangerous. They increase the number and virulence of the bacteria, inflict traumatisms on the uterine musculature, and cause an extension of the infection. In selective cases, posterior colpotomy is of great value. If there are collections of pus in the pelvis high up, it is best to leave such conditions alone for weeks or months until after the acute process has terminated. Hysterectomy, he says, is associated with a heavy primary and secondary mortality. If the virulent process is confined to this organ its removal is indicated, but its early diagnosis is exceedingly difficult. In general, hysterectomy is indicated where there is uterine traumatism with infection, probable or already commencing. Second, in inflamed or gangrenous myomata. Third, mortification of the fœtus in utero. Fourth, severe inflammations of the uterus when purulent processes are found in the walls from which pyæmia may originate.

Serum therapy has been of little value in puerperal sepsis. Collargol is not specific but is used in certain cases. Stowe used intravenous injection of bichloride of mercury in undoubted cases of septicæmia and lost five patients. In the cases that recovered the beneficial effect of the mercury was noticeable. The general treatment in all cases of septicæmia is of the greatest importance. The feeding should consist of eggs, milk, beef juice, and alcohol. Rectal feedings may be necessary. The relief from pain is often brought about by keeping ice on the abdomen. Otherwise give opiates. The patient should have from six to eight hours' sleep daily. Salines by rectum or under the skin are of value, especially when the kidney function is weak. The drop method of Murphy is of great value in certain cases. Strychnine, digalen, camphorated oil are indicated as cardiac tonics. Fresh air and sunlight are of great importance, especially during the period of convalescence. His article ends by a brief analysis of the fifty fatal cases.

PITUITRIN IN OBSTETRICS.

Hahl[6] briefly reviews the early works on the use of pituitrin in obstetrics, and then goes on to report forty-two cases of his own where pituitrin has been used. At the first pituitrin was given in .4 and .5-.6 of a gram and later, towards the end of his cases, he gave one gram repeated in two or three cases in about three hours. In all cases was the pituitrin given subcutaneously, except in one case where it was given directly into the uterine musculature in a Cæsarean section. In the majority of cases the pains started within a short period after the injection of pituitrin and became considerably stronger with shorter intervals. The effect of the pituitrin lets up in about eighty minutes. Hahl feels that at the present time not too great hope must be put in it. It is by no means an infallible measure of starting up uterine contractions, and the danger lies in the fact that as the pains become stronger, the intervals become shorter, and from his experiments on several cases, intra-uterine pressure becomes greater. After the liquor has gone from the uterus there is a greater tendency for the uterus to come into a state of tetanic contraction. Each individual woman may react differently. It is better to try a small dose first and then to repeat the dose rather than to give one large dose, but in a case of hemorrhage the effect cannot be too quick, and therefore, a large dose should be given at once. That was shown in one case of his where there was a twin pregnancy and there was severe bleeding. The uterus did not contract well, and immediately after one gram of pituitrin was given good contractions were obtained and the bleeding ceased. In two cases he records that its use brought about the death of the child. Hahl's conclusions at the present time about the use

of pituitrin are that it is a valuable aid, though not infallible means of making the uterus contract more forcibly. He does not feel that the contractions become continuous unless too large doses be given.

INFANT MORTALITY.

Jacobi[7] in his presidential address before the American Medical Association took for his subject, "The Best Means of Combating Infant Mortality." The first part of his paper is taken up almost entirely with an appeal for maternal nursing. The second part on what he has to say about midwives is most interesting. He takes a definite stand that a system of teaching midwives should be developed in the United States. The standard that he puts for the midwives is a high one. He says she must have as moral a character as you expect in a male or female student of medicine. She must have a good common school education, without Latin or Greek. She must have fair health so as to endure the hard work she must undergo in the future, a reputation for love of work and conscientiousness and must have such knowledge of popular physiology and anatomy as the program of our future midwifery schools will designate. The schools must teach the care of expectant women, the conduct of normal labor, care of babies immediately after birth, the simple principles in urgent cases of artificial feeding and the diagnosis of abnormalities so as to advise the calling of medical skill. He calls attention to the fact that the Bellevue and allied hospitals have established a small school of midwifery. He says that it is useless to attempt to compare the midwife with the medical man. They must be considered individually. An ignorant doctor in obstetric work is the inferior of a well-informed midwife, and vice versa. The whole paper is one that should arouse the interest of all medical men who come in contact with infants.

MEDICAL EDUCATION IN THE MIDWIFE PROBLEM.

Williams[8] made up a questionaire of some fifty questions and sent them to the professors of the one hundred and twenty medical schools giving a full four year course in the United States, and from these one hundred and twenty medical schools, forty-three professors answered his questions. His paper, which he read before the American Association for the Study and Prevention of Infant Mortality, is based on these questions and answers. The article is too long to abstract fully and one can only show the mere outline of his findings, but it behooves all medical practitioners who are interested in the welfare of their profession to read it thoroughly and intelligently. His questions cover the ground of teaching obstetrics splendidly, and the answers that he obtained are an absolute disgrace to medical education in the United States. The answers that he has obtained show that the teaching of obstetrics is absolutely inadequate and that each year the medical schools are turning loose on the community (what many of the more conscientious men have known for years) hundreds of young men whom they have failed to prepare properly for the practice of obstetrics and whose lack of training is responsible for many deaths of women and infants. These admissions that the poor training of the medical men is responsible for many unnecessary deaths in childbirth, forces Williams to say that the improvement in the status of the midwife alone will not materially aid in solving this problem. His conclusions are as follows:

(1) Generally speaking, the medical schools are inadequately equipped for teaching obstetrics properly, only one having an ideal clinic. (Professor Williams has carefully omitted all names in his paper, and what clinic this is is not stated.)

(2) Many of the professors are poorly prepared for their duties and have little conception of the obligations of a professorship.

(3) Many of them admit that their students are not prepared to practice obstetrics on graduation.

(4) Half of the answers state that ordinary practitioners lose proportionately as many women from puerperal infection as do midwives and over three-quarters admit that more deaths occur each year from operations improperly performed by practitioners than from infection in the hands of midwives.

(5) Reform is urgently needed and can be accomplished more speedily by radical improvement in medical education than by attempting the almost impossible task of improving midwives. The reforms Williams suggests are as follows: (a) Reduction in the number of medical schools. (b) Insistence that the head of the department of obstetrics be a real professor and not a prosperous practitioner. (c) Recognition by the medical schools and hospitals that obstetrics is one of the fundamental parts of medicine. (d) Education of the general practitioner to realize that he is competent only to conduct normal cases of labor and that major obstetrics is major surgery and should be undertaken only by especially trained men. (e) The requirement by State examining boards that every applicant for a license to practice medicine submit a statement saying he has seen delivered and has personally examined, under appropriate clinical conditions, at least ten women. (f) Education of the laity that poorly trained doctors are dangerous and that most of the ills of women result from poor obstetrics. (g) Extension of obstetric charities and free hospital and out-patient service for the poor, and proper semi-charitable hospitals for those in moderate circumstances. Williams wishes to see the greater development of the visiting obstetric nurse and the gradual abolition of midwives in

large cities, and he says that if midwives are to be educated it should be done in a broad sense and not in a makeshift way.

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[7] Jacobi: "The Best Means of Combating Infant Mortality." Jour. of the Amer. Med. Asso., vol. lviii, no. 23, June 8, 1912.
[8] Williams: "Medical Education and the Midwife Problem in the United States." Jour. of the Amer. Med. Asso., vol. lviii, no. 1, Jan. 6, 1912.

Book Reviews.

Case Histories in Neurology. A Selection of Histories Setting Forth the Diagnosis, Treatment and Post Mortem Findings in Nervous Disease. By E. W. TAYLOR, A.M., M.D. 8vo, pp. 305, with 37 illustrations. Boston: W. M. Leonard. 1911.

This volume of the Case History series presents brief descriptions of 117 cases of various forms of disease of the nervous system, under the conventional divisions of diseases of the peripheral nerves, spinal cord and brain, diseases with a vague pathological basis and psychoneuroses. An introductory chapter gives a brief but excellent description of the principles of diagnosis, based on anatomical and physiological considerations and illustrated by a few simple and instructive diagrams, and each division is preceded by a brief explanatory section on the principles of diagnosis and treatment. The object of the book is "to set forth in practical form, on the basis of the Case System, certain fundamental facts regarding the symptomatology, diagnosis, treatment and pathological findings in the more frequent disorders of the nervous system." As the discussion of the individual case rarely extends beyond two pages it is evident that little space is available for the discussion of the details of treatment or of clinical examination. Within the limitations of such a work, however, the cases are well presented and the selection has been such as to present most of the important forms of nervous disorder. It is curious, however, that none of the half dozen cases of tabes described should have presented the tabetic cuirass, which is so often of help in diagnosis. The work as a whole may be recommended to all those who find benefit from the Case History system as an excellent presentation of that system in its neurological aspects.

The Treatment of Shortsight. By DR. J. HIRSECHBERG, Berlin. Translated by G. Lindsay Johnson, M.D. New York: Rebman Company.

The subject matter of this little book (123 pages) is interesting and will be useful to any practicing ophthalmologist as giving the views of an eminent authority on the subject. The author does not believe in the full and constant correction of myopia except in the lower degrees. Not all oculists will agree with the statement, "Nobody can endure wearing -16, 18 or -20 D. continuously." However, the book is full of keen comment based on long experience. The work of the translator could not well be worse done.

Principles and Practice of Physical Diagnosis. By JOHN C. DACOSTA, JR., M.D., Assistant Professor of Clinical Medicine, Jefferson Medical College; Assistant Visiting Physician, Jefferson Hospital, etc., Philadelphia. Second edition, revised. Octavo of 557 pages, with 225 original illustrations. Philadelphia and London: W. B. Saunders Company. 1911.

DaCosta's Physical Diagnosis in this new edition is a work which can be highly recommended as a text-book of its subject. In the first section the technic and methods of physical examination are fully and clearly described, and in subsequent sections the different anatomical regions and physiological systems of the body are discussed in turn. In each the clinical anatomy and the general phenomena of physical examination are first described, and then each individual disease is given separate consideration with reference to its clinical pathology, physical signs, and in most instances the methods of differential diagnosis from other diseases. The descriptions are clearly stated, and are ably supplemented by excellent illustrations and diagrams. Recent advances have as a rule been closely followed, although in the rapidly changing field of cardiac arrhythmias the generally discarded nodal rhythm is described, and the teachings of the electrocardiograph are not mentioned.

Transactions of the Seventeenth Annual Meeting of the American Laryngological, Rhinological and Otological Society. Published by the Society. 1911.

This volume contains not only the papers and discussions of the annual meeting, but also those of the midwinter meetings of the four sections, making in all fifty-eight titles. Most, if not all, of these papers have been published in different medical journals, and are here collected as additional means of reference. These transactions as they appear annually are an excellent means of furnishing a library with a collection of articles, many of them important, in a compact and available form.

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IMMIGRATION AS A FACTOR IN THE INCREASE OF INSANITY.

EIGHT years ago the special census reports indicated that the number of insane in the United States was increasing relatively faster than the population.[1] Since that time evidence has accumulated to show that this disproportionate increase still continues. In the *New York Medical Journal* for July 27th, 1912, John B. Macdonald shows conclusively that making all allowances for the increasing tendency to place mental defectives of all sorts in institutions, thus reducing the number of the unknown insane to a minimum, there is nevertheless an actual augmentation of the number entirely out of keeping with the natural increase in general population.[2] With the increase in insanity, the problem of its treatment and prevention becomes more and more complex. The difficulties surrounding the treatment of the actually insane are chiefly those attendant upon the procuring of proper legislation and sufficient funds for the managing of our institutions.

Largely due to the pioneer efforts of Philippe Pinel in France, following the political and social upheaval of the French Revolution, and later to the English Quakers led by William Tuke, mechanical restraint and seclusion of the insane came to be regarded with ever-increasing disfavor, till finally the modern humane principles of treatment were established upon a firm basis by Dr. John Conolly.[3] It is now over seventy years since Dr. Conolly was appointed superintendent of the asylum at Henwell, England. It is said that "he found a mad house a prison and a place of torture without mercy; he left it a hospital for the many and an asylum in fact as well as in name for all its inmates."[4]

Since Conolly's time the advances in treatment have been steady and progressive, until now there is but little ignorance in regard to this phase of the subject. The chief difficulty lies in providing facilities fast enough to keep pace with the demand for them. But though the treatment of the actually insane is now fairly well administered, the problem of preventing the multiplication of our mentally defective stock, already large in numbers, is becoming daily more acute and perplexing. Davenport has advanced the theory that segregation of all persons suffering from mental disorders during the reproductive period of their lives would suffice to reduce insanity and feeblemindedness to an almost inestimable quantity within the comparatively short time of one generation.[5]

While such a plan may be theoretically possible, the time is not yet ripe for the application of such revolutionary measures. There is, however, one method of easy application which, properly enforced, will serve to prevent the unnatural increase of our mentally defective stock. This method consists in taking means to see that our immigration laws are properly administered and enforced. As is well known to all our readers the mentally defective alien cannot lawfully be permitted to land in the United States. Notwithstanding this, a consideration of all available statistics only serves to confirm the general impression that it is the alien and his children who are filling our state institutions to overflowing.

The special census reports for 1903 showed that the proportion of feebleminded in institutions in the United States was four times as great for the foreign born as for the native. Reports of the enumeration of the defective classes made in 1910 have not yet been made public but all the indications point towards an ever increasing proportion of mentally defective aliens. Thus in the New York City public schools in 1911 there were 125 ungraded classes in which backward and defective children were grouped. The investigation of Miss Anna Moore published by the State Charities Aid Association showed that nearly all of these children were the offspring of foreigners.[6]

Not only are the feebleminded largely re-

[1] Special Reports of the Census Office. Insane and Feebleminded in Institutions, 1904, p. 8.
[2] John B. Macdonald: Heredity and Insanity. New York Medical Journal, July 27, 1912.
[3]–[4] Charles W. Page: Mechanical Restraint and Seclusion of Insane Persons. Boston Medical and Surgical Journal, Dec. 1, 1904. (4) *Ibid.*
[5] Charles B. Davenport. Heredity in Relation to Eugenics, p. 259.
[6] Anna Moore: Report of New York State Charities Aid Association, 1911.

cruited from this class, but the insane, likewise, are chiefly supplied by the newly arrived immigrants. In New York State during 1908 the admissions of foreigners to insane hospitals numbered 2,548,[7] which was practically half of the total number admitted.

When we consider these figures and contemplate not only the vast expense which the defective alien imposes upon our tax payers, but likewise the danger which his presence causes to the mental integrity of the race, we are at a loss to understand the lukewarmness of the Federal authorities whose duty it is to provide proper facilities for the detection of tainted stock at the time of its entry into the country.

During the year 1911 out of a total of 900,936 aliens applying for admission into the United States, only 318 were debarred on account of any mental defect.[8] It has been estimated that over three times this number of newly arrived immigrants found their way into the psychopathic wards of New York State institutions during the same year.[9]

These figures are eloquent in their expression of a neglected public duty. The first decades of the nineteenth century saw a revolution in the ideas of the way that the insane should be treated. The pioneer work of Pinel and Conolly has, in this particular, brought forth fruit abundantly. But, in the actual prevention of mental diseases, we have scarcely advanced a single step. This is as much due to wilfulness and official laziness as it is to ignorance. We know the way but refuse the counsel of those who are able to guide us.

THE NINTH INTERNATIONAL OTOLOGICAL CONGRESS.

THE Ninth International Otological Congress completed its sessions at the Harvard Medical School in Boston on Friday of last week, Aug. 16. A total of 213 members and 197 guests were registered. There were 25 delegates from foreign countries and from Canada, the European nations represented being England, Germany, France, Austria and Italy. The first of these congresses was held in 1876 in New York, the succeeding ones having been successively at Milano, Basel, Bruxelles, Firenze, London, Bordeaux and Budapest.

[7] Twentieth Annual Report of the New York State Commission in Lunacy, Part I. Appendix, p. 1638.
[8] Annual Report Commissioner General of Immigration, 1911.
[9] T. W. Salmon: Insanity and the Immigration Law. New York State Hospital Bulletin, November, 1911.

The first day of the present congress, Aug. 12, was occupied largely with formalities. The congress was opened by Professor Kornel von Lichtenberg, of Budapest. The address of welcome was made by Dr. Edward H. Bradford, dean of the Harvard Medical School, and there were brief responses by Professor Adam Politzer, of Vienna; by Professor Vittorio Grazzi, of Italy; by Dr. Urban Pritchard, professor of otology at King's College, London; and by Dr. E. J. Moure, of Paris. These were followed by the inaugural address of Dr. Clarence John Blake, of Boston, president of the congress. In the evening the presidential reception was held in the Administration Building and on the adjacent terraces, and proved an exceedingly brilliant and successful event.

On Tuesday, Aug. 13, the scientific sessions of the congress began, the principal speakers of this day being Dr. Urban Pritchard, London, Eng.; Dr. George E. Shambaugh, Chicago; Dr. E. R. Carpenter, El Paso, Tex.; Dr. W. S. Bryant, New York; Dr. F. Siebermann, Basel, Switzerland; Dr. Ralph Butler, Philadelphia; Dr. George L. Streeter, Ann Arbor, Mich.; Dr. William Milligan, Manchester, Eng.; Dr. Arthur H. Chatle, London, Eng.; Dr. B. Alex. Randall, Philadelphia; Dr. W. M. Dunning, New York; Dr. Gorham Bacon, New York. Lunch was served on the terrace of the Administration Building, and in the evening a reception to members and guests of the congress was given at the Harvard Union, Cambridge, by President and Mrs. Abbott Lawrence Lowell.

The morning session of the third day, Aug. 14, was devoted to lantern-slide lectures illustrating the histology and micropathology of the ear. At the afternoon session the principal speakers were Dr. T. Citelli, of Catania, Italy, Dr. N. Rojas Acosta, of Corrientes, Argentina, and Drs. E. Lebman and Frederick E. Sondern, of New York. Dr. C. R. C. Borden of Boston contributed a paper on diseases of the middle ear and mastoid cells that was based upon a study of 454 autopsies in 2232 cases of diphtheria, scarlet fever and measles from the contagious department of the Boston City Hospital. Dr. Evelyn Wyman Nagle of Boston discussed the principles of vaccine therapy as applied to suppurative otitis media. In the evening a public session was held in Huntington Hall, Boston, the subject being "The Suppression of Unnecessary Noise." The principal addresses on this topic were by Dr. Clarence John Blake, by Dr.

James Jackson Putnam, of Boston, by Mr. Stoughton Bell, of Cambridge, Mass., and by Professor Edward S. Morse, of Salem, Mass. Dr. Blake emphasized the physical harm wrought in the ear by excessive noise, and referred to the experiments on this subject by Professor Siebermann, of Basel. Dr. Putnam pointed out particularly the psychologic effect of excessive noise.

"There is a difference between natural noises and those which irritate us, because they seem unnecessary. As civilization grows, sensitiveness increases. Consideration must be shown to the more delicate and it is undoubtedly true that a great proportion of people want noise removed."

"Trying to get rid of noise will meet opposition on account of the expense and trouble involved. So the less easily removed causes of noise are, the more reason may be required for their removal. The sense of fatigue under constant noise is not the real measure of its effect. There is an internal sense of fatigue which responds to the wear and tear of noise which does a subtle harm."

Mr. Bell considered the legal aspects of noise, and Professor Morse discussed its sociologic aspects:—

"In any estimate of a people in civilization we must take all the factors, brutal and gentle, and balance them. Measurements of precision we have not. We may, however, take two standards for comparison, the lowest and most degraded savage on the one hand and the highest cultivated intellect on the other. The one demands an appalling racket for all celebrations such as weddings, funerals, sacrifices and initiations. Senseless and deafening noise characterizes the savage; gentleness and quiet ways as markedly characterize the other. If our people can be impressed with the idea that certain behaviors and conditions belong to the savage, the sooner shall we awaken to a realizing sense of our deficiencies. I ask you to observe the undeniable fact that our people are the noisiest civilized people on the face of the earth, the Chinese easily coming second, and only for the reason that they are mercifully ignorant of the steam whistle. Nearly every city and town in the United States permit the shriek of the steam whistle which, if we were civilized in this respect, we should instantly suppress."

The fourth day of the congress, Aug. 15, was devoted to continued sessions at the Harvard Medical School. The proceedings of all the meetings were recorded by dictographs placed in front of the speakers, and there was in conjunction with the congress an extensive and interesting exhibition of these and other important modern telephonic devices and appliances. It was voted to accept the invitation of the German Otologic Society to hold the next congress, in 1915, at Halle, Germany. For this congress the following officers were elected: President, Dr. Alfred Denker, director of the otologic clinic at the University of Halle; vice-president, Dr. B. Alexander Randall, of Philadelphia; secretary and treasurer, Dr. Henry O. Reik, of Baltimore; assistant secretaries, Dr. William F. Knowles, of Boston, Dr. Ralph Butler, of Philadelphia, and Dr. Jesse W. Downey, of Baltimore. On the evening of this day was held the triennial banquet of the congress. Dr. Blake presided, and addresses were made by Dr. Urban Pritchard, of London, Dr. Alfred Denker, of Germany, Professor Guiseppe Gradenigo, of Turin, Italy, Professor F. Siebermann, of Basel, Switzerland, Professor H. Luc, of Paris, representing the College of France, Professor H. V. Neumann, of Vienna, and Mr. Charles A. Ballance, of London, representing the Royal College of Surgeons, England. Addresses were also made by the representatives of the American societies. Dr. James McKernon of New York reviewed briefly the history of the American Otological Society. Dr. Hudson MacEwen of Philadelphia, president of the American Rhinological, Laryngological and Otological Society; Dr. G. Stuckey of Louisville, Ky., president of the American Academy of Otolaryngology, and Dr. George A. Leland of Boston, president of the New England Otological Society, spoke concerning the work done by their respective organizations; and Dr. Edward Dench of New York answered to the toast of American otology by giving a review of the progress of the science up to the present day.

The closing day of the congress, Aug. 16, was devoted to a symposium on deaf-mutism. Addresses on the educational problem of the deaf were made by Dr. MacEwen, of Philadelphia, and Dr. M. A. Goldstein, of St. Louis. Professor John D. Wright, of the Wright Oral School of New York, described the various classes of the deaf and the appropriate methods of education employed for each, and in illustration presented three of his pupils, among them Miss Helen Keller, who addressed the audience with ease and fluency in four languages. Professor Charles A. White, of the New England Conservatory of Music, then demonstrated the methods which he has practiced with Miss Keller for improving the tone, pitch and rhythm of the speaking and singing voice in deaf-mutes.

This congress, thus concluded, has afforded to the medical profession not only of this country,

but of the world, abundant demonstration of the progress of otologic science, and reflects great credit on those whose labor and efficiency made it so distinguished a success.

MEDICAL NOTES.

BOSTON.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending August 13, 1912, there were reported to the Boston Board of Health the following cases of infectious diseases:

Diphtheria 27, scarlatina 5, typhoid fever 11, measles 31, smallpox 0, tuberculosis 39.

The death rate of the reported deaths for the week was 14.48.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, August 10, 1912, is 191, against 216 the corresponding week last year, showing a decrease of 25 deaths, and making the death rate for the week 13.83. Of this number 112 were males and 79 were females; 185 were white and 6 colored; 126 were born in the United States, 61 in foreign countries, and 4 unknown; 40 were of American parentage, 131 of foreign parentage, and 20 unknown. The number of cases and deaths from infectious diseases reported this week is as follows:—Diphtheria, 35 cases and 2 deaths; scarlatina, 10 cases and 0 deaths; typhoid fever, 10 cases and 0 deaths; measles, 30 cases and 0 deaths; tuberculosis, 53 cases and 16 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 10, whooping cough 1, heart disease 27, bronchitis 1. There were 16 deaths from violent causes. The number of children who died under one year was 41; the number under five years, 55. The number of persons who died over sixty years of age was 44. The deaths in hospitals and public institutions were 94. Deducting deaths of non-residents, the total is 147. The corrected death-rate is then 10.65.

NEW YORK.

TRACHOMA IN A TRAINING-SCHOOL.—Since March more than 120 cases of trachoma have been reported in the Training School for Girls at Hudson, where the disease appears to have been introduced by a girl from New York who had been treated for this trouble for a year past, but who evidently was not cured when admitted to the institution. A special investigation of the outbreak was recently made by Dr. H. D. Schenck, consulting ophthamologist to the State Health Department, in which the eyes of eighty girls were examined, and all of these, with the exception of three doubtful cases, showed evidences of trachoma. It was found that through neglect of quarantine measures about one-third of all the inmates had become infected. Full instructions as to quarantine and treatment were given to the house physician and officers, which, if carried out faithfully, will free the institution from the disease, though it will probably be several months before all the eyes are well.

VISION AND HEARING OF SCHOOL-CHILDREN.—The State Health Department reports that during the months of May and June tests of the eyesight and hearing of the pupils were applied in all the public schools in villages and rural districts throughout the state. The examinations were made by the teachers, following printed instructions issued by the department, the results being recorded on forms provided for the purpose; and where defects of vision or hearing were discovered, parents were notified and the recommendation made that the pupil be given skilled attention by a physician or the health officer. Examinations of this character in cities being usually made by trained medical inspectors, the department does not of course claim that the work of the teachers in the country schools is as accurate or thorough, but in the absence of any other method at present available, is convinced that it is far better than none at all. To what extent defects of vision can exist without the knowledge of the victim or his associates is evidenced by the fact in two of the schools a pupil was found to be totally blind in one eye without the children themselves or their parents or teachers being aware that they did not enjoy normal vision.

A PHYSICIAN'S LIBRARY GIFT.—Dr. William Paul Gerhard, well known as a sanitary expert, has donated a library of nearly five hundred volumes to the sanitary and biological department of the College of the City of New York.

A HOSPITAL BEQUEST.—St. John's Guild, with its floating and seaside hospitals, receives $10,000 by the will of the late Neils Poulsen, who came to New York from Denmark a poor boy and established iron works in the Williamsburgh section of Brooklyn. The same giver left $484,000 as an endowment fund for the benevo-

lent work of the American Scandinavian Society, of which he was one of the founders.

Unusual Bovine Gastric Contents.—Report from Newburgh, N. Y., states that in one of the stomachs of a tuberculous cow, killed in that town on Aug. 13, were found a gold watch and chain which had been lost some time before by a local summer boarder. This discovery raises an interesting question as to who is the legal owner of the unusual gastric content,—whether the original possessor of the watch, the farmer who purchased the cow, or the state which ordained her death and paid for the carcass.

Opening of a New Veterinary Hospital.—On Aug. 15 was formally opened in New York the new veterinary hospital and dispensary of the American Society for the Prevention of Cruelty to Animals.

"This institution is the most complete of its kind in the world. Medicine and professional advice are given free to those who are unable to pay. The building includes a series of wards, private rooms, pharmacies, operating-rooms, exercise-rooms and isolation wards for animals suffering from contagious diseases. The ground floor has a garage equipped with fifteen automobile ambulances and wagons."

Typhoid in New York and New Jersey.—A mild epidemic of typhoid fever is reported as being in progress among banking clerks in the financial district of New York City. Eight cases and one death of the disease are said to have occurred. The infection is attributed to a bottled spring water which has recently been in general use. Report from Morristown, N. J., on Aug. 11, states that a recent local epidemic of typhoid, involving a total of 32 cases and one death in Morristown and its adjacent villages, has been traced to a typhoid carrier who worked in a dairy.

Cornell University Medical School.—The recently published Cornell University Medical Bulletin contains the announcement of the Medical College, at New York and Ithaca, for the academic year 1912-1913. In the general statement of the equipment, facilities and plan of instruction, particular reference is made to the Loomis laboratory, and to its function in the provision to students of opportunity for original research under adequate guidance. The total number of students during the year 1911-12 was 123.

Current Literature.

Medical Record.
August 10, 1912.

1. Woodruff, C. E. *Birth Rates, Overpopulation and The Cost of Living.*
2. Thomson, W. H. *Sporadic and Epidemic Poliomyelitis.*
3. Kintzing, P. *The Persistence of Certain Racial Characteristics.*
4. Meyer, A. *The After-Care of Discharged Cases of Pulmonary Tuberculosis.*
5. Faught, F. A. *The Insurance Examiner and Blood Pressure Test.*
6. Greely, H. *Race Resistance.*
7. Eshner, A. A. *Exophthalmic Goiter.*
8. Wilson, S. J. *A Case of Henoch's Purpura Treated With Human Blood Serum.*

New York Medical Journal.
August 10, 1912.

1. Van Slyke, D. D. *The Proteins.*
2. Miller, E. A., and Quimby, A. J. *Comparative Value of Physical Signs and the X-ray in Determining Chest Conditions.*
3. Leslie, F. A. *Heath's Conservative Mastoid Operation and Its Pathological Foundation.*
4. Hubbard, E. E. *A Sketch of the Cancer Question to Date.*
5. Steinhardt, I. D. *Ten Sex Talks to Girls.*
6. Rabinowitch, H. *Tuberculous Meningitis.*
7. *Brewer, I. W. *Antivaccination and the Medical Profession.*
8. McEvoy, L. D. *Prenatal Influences.*

7. Brewer suggests that the profession may be partly responsible for the growing popular prejudice against vaccination in that sufficient care is not taken to guard against infection. Strict surgical asepsis is absolutely necessary. [L. D. C.]

The Journal of the American Medical Association.
August 10, 1912.

1. Blue, R. *The Problem of the Public Health.*
2. *Knowles, F. C. *Psoriasis Familialis.*
3. *Winfield, J. M. *Lactic Acid Colonic Irrigation in the Treatment of Psoriasis.*
4. *Cummer, C. L., and Dexter, F. R. *The Relation of Aortitis to Syphilis and the Importance of the Recognition.*
5. Moore, A. R. *Fischer's Theory of Edema and Nephritis.*
6. Flanagan, A. J. *The Hospital's Need of a Dental Staff.*
7. Haslett, H. S. *Cleft Palates: With Special Reference to the Closing of a Surgical Cleft by the Use of a Dental Appliance.*
8. Babcock, W. W. *Acute Osteomyelitis of the Jaw.*
9. Ivy, R. H. *The Duboscq Colorimeter as a Means of Estimating Hemolysis in the Wassermann Reaction.*
10. Hills, R. A. *An Operation for Pott's Disease of the Spine.*
11. Branson, L. H. *Physical Injuries as Results of Hydrofluoric Acid.*
12. *Kistler, H. D. *Thrombophlebitis of the Left Leg.*
13. Suggett, O. L. *A New Simple Apparatus for the Intravenous Administration of Salvarsan with Saline Solution Preceding and Following.*
14. Graves, G. W. *A Pocket-Case for Full Blood Pipets.*
15. Jacobs, F. B. *Determination of End Reaction in Estimation of Glucose.*
16. Hunter, J. W. *A New Method of Using Fehling's Solution.*
17. Taylor, K. *A Method by Which Living Organisms can be Photographed.*
18. Herd, C. R., and Olsho, S. L. *A Case of Unsuspected Melanosarcoma of the Choroid.*

19. Hanley, A. W., and Manning, J. B. *Sarcoma of the Cerebellum in a Boy.*
20. Yeager, F. N. *A Case of Ectopic Gestation at Full Term with Fetus Carried in Abdomen for Thirty-five Years.*
21. Herold, A. A. *A Virulent Case of Epidemic Cerebrospinal Meningitis. Four Hundred and Twenty Cubic Centimeters of Serum Administered.*
22. Rosenbloom, J. *A Disturbing Factor in Lieben's and in Gunning's Test for Acetone in the Urine.*
23. Dorsett, J. W. *Syphilis Complicated with Uncinariasis.*
24. Tholandran, A. A. *Spirochetes in the Mouth.*
25. Thompson, L. O. *A Simple Refrigerator for Laboratory Workers.*

2 and 3. Knowles states emphatically that he does not believe that there is any evidence that psoriasis is in any way a hereditary disease and Winfield believes that colonic irrigation with salt solution and the administration of lactic acid by mouth is a soluable form of treatment.

4. Cummer and Dexter believe that a large proportion (70–75 per cent.) of lesion of the aorta or aortic valves are syphilitic in origin. This disease is a definite manifestation of syphilis and generally comes late. It is often associated with cerebrospinal manifestations.

12. Kistler believes that the very common occurrence of thrombophlebitis in the left leg is due to the fact of the constriction of the termination of the left external iliac vein by its surrounding elastic loop of arteries and hence injury to the intima and hence thrombosis. [E. H. R.]

The American Journal of the Medical Sciences, July, 1912.

1. Rochester, D. *Constipation.*
2. *Miller, J. L. *Some Clinical Observations on the Drug Treatment of Edema.*
3. *Cohen, S. S. *The Non-surgical Treatment of Exophthalmic Goitre.*
4. *Koplik, H. *Infections Following Tonsillotomy With a Consideration of the Forms of Such Infections.*
5. *Fetterolf, G. *The Anatomy and Relations of the Tonsil in the Hardened Body With Special Reference to the Proper Conception of the Plica Triangularis. The Principles and Practice of Tonsil Enucleation as Based Thereon.*
6. Bass, M. *Chvostek's Sign and its Significance in Older Children.*
7. Sutton, R. L. *A Clinical Note on Verrucae Plantares.*
8. *Hoyt, D. M. *The Therapeutic Application of p-Hydroxyphenylethylamin (Tyramine): An Active Principle of Ergot.*
9. Smithies, F. *The Occurrence of Trichomonas Hominis in Gastric Contents With a Report of Two Cases.*
10. Young, J. K. *Sacroiliac Displacement.*
11. *Gorham, L. W. and Lisser, H. *Hemolysis in Vivo Vitro as Diagnostic of Cancer.*

2. Miller reports observations on the actions of certain diuretic drugs, digitalis, strophanthin intravenously, theophyllin, and Fischer's solution of crystaline sodium bicarbonate 8 grams and sodium chloride 15 grams to a liter of water, in cases with edema, which he divides into two classes, first cases of chronic interstitial nephritis with edema chiefly cardiac, and, second, cases of renal edema due to acute or chronic nephritis. In the first group the diuretic effects of digitalis and of strophanthin were neither constant nor striking, although relief of dyspnoea was frequently obtained; in cases of this group the diuretic action of theophyllin was marked. In the cases with renal edema digitalis, strophanthin, and the alkaline diuretics were without effect; theophyllin produced diuresis in but two out of five cases; in four of these to which Fischer's solution was given by rectum no diuresis resulted, but in two of these which were given Fischer's solution intravenously the daily output of urine was markedly increased, although no improvement in the general condition could be detected.

3. Cohen's article is an able description of the methods at command in dealing with cases of Graves' disease which do not belong to the 15 to 20 per cent. of all cases of the disorder in which surgical interference is indicated. Early diagnosis may reduce the proportion of surgical cases to five per cent. Each case under medical treatment must be considered individually with the object of providing, in the fullest possible degree, rest both of body and of mind. Fresh air and diet are of importance. Educational exercise of the vasomotor system as by hydrotheraphy is of benefit. Much stress is laid upon preparations of ductless glands, as well as upon symptomatic medication. Of the various sera and allied preparations that of Rogers and Beebe is the only one mentioned with any favor, and the results of that treatment are set down as still inconclusive.

4. Koplik writes to call attention to and to illustrate by reports of cases, the occurrence of general infections following tonsillotomy. He describes three types of cases. The first form runs an obscure fever for a week or more without causing any endocarditic or other lesions. The second is accompanied by endocarditis either mild or malignant. The third shows hemolysis, hemorrhages and bronchopneumonia.

5. Fetterolf describes at length the anatomical relations of the tonsil, and the technic which he has adopted in its complete enucleation. The method can not be adequately explained in a brief review, but it undoubtedly marks an important advance beyond the incomplete operations hitherto performed.

6. Bass has investigated the occurrence of the facial phenomenon of Chvostek, or the appearance of contractions of muscles supplied by the facial nerve in response to percussion over the trunk of the nerve, (York). He obtained a positive reaction in 3.2 per cent. of all cases and in 19.6 per cent. of those from ten to fourteen years of age. These findings lead the author to conclude that the sign is of little value in the diagnosis of tetany. He does, however, regard its presence as useful evidence of a neuropathic constitution.

8. Hoyt reports clinical experiments as to the effects of a substance known as tyramine, an amine obtained from ergot, remotely related to epinephrin. When given by mouth its action in raising blood-pressure was slight and inconstant, but when given subcutaneously marked increases of blood-pressure occurred within five minutes. The curve of blood-pressure resembled that resulting from the intravenous injection of adrenalin in its rapid rise and subsequent fall after ten or fifteen minutes. In cases of shock injections of tyramine had approximately the same effect in normal subjects.

11. Gorham and Lisser have studied the hemolytic skin reaction for carcinoma of Elsber Neuhof and Geist in comparison with the hemolytic power in vitro of the serum of cancer patients. They concluded that no relation exists between the cutaneous reaction and the hemolysis in the test tube. They regard a positive skin test as suggestive of the presence of cancer, but by no means conclusive. [F. W. P.]

Deutsche Medizinische Wochenschrift, No. 18. May 2, 1912.

1. Grober. *The Treatment of Chorea Minor.*
2. Bier, A. *Duodenal Ulcer.*
3. v. Ellerman. *The Nature of Essential Pernicious Anaemia.*
4. Hauser, R., and Springer, W. *A Case of Pseudotyphoid due to faecalis alkaligenes.*
5. Zabel, E. *The Diagnosis of Diseases of the Gastrointestinal Tract by use of X-ray Methods.*
6. Merkens, W. *Caecum Mobile.*

7. Hollenbach, F. *A Case of Appendicitis With Complete Situs Transversus.*
8. Reiter. *The Value of Vaccine Therapy in Urology.*
9. Strauss. *Inflammation of the Nails among Confectioners, an Occupation Disease.*
10. Erdös. *Merjodin, in the Treatment of Syphilis.*
11. Stein, B. *Rheumatism and Nasal Disease.*

No. 19. May 9, 1912.

1. Bing, R. *Localization of Cerebellar Lesions.*
2. Jödicke, P. *Status Epilepticus.*
3. Munk, F. *Antigen in the Wassermann Reaction.*
4. Bauer, J., and Wüsthoff, F. *Anaphylactic Poisoning with Organ Extracts.*
5. *Hilgermann and Losen. *The Demonstration of Tubercle Bacilli in the Blood in Cases of Pulmonary Tuberculosis, and Its Prognostic Significance.*
6. Syllaba, L. *The Occurrence of Urobilin and Bilirubin in Human Serum.*
7. Fries, K. A. *An Apparatus for Artificial Respiration.*
8. Albrecht, T. *Immune Sera for Hay Fever.*
9. Stanowski, L. *Increased Water Consumption in Diabetics.*
10. Jonnesco, T. *Spinal Anesthesia.*

5. The authors examined the blood for tubercle bacilli in 64 cases of pulmonary tuberculosis. They conclude: 1. In about 25% of cases of pulmonary tuberculosis the tubercle bacillus may be found in the circulating blood, not only in advanced but also in early and incipient cases. 2. Their presence has no relation to the variations in temperature. 3. The prognosis is less favorable in those cases in which the bacilli are found. 4. The diagnostic value of the procedure is slight. [C. H. L., Jr.]

Berliner Klinische Wochenschrift. No. 17. April 22, 1912.

1. Hürthle, K. *The Relation between the Blood Pressure, and the Rapidity of the Flow of the Blood in the Arteries.*
2. Bickel, A. *Mesothorium, Thorium-X, and Thorium Ray Therapy.*
3. Kojo, K. *The Biological Action of Mesothorium.*
4. Minami. *The Biological Action of Mesothorium.*
5. Stein, A. E. *The Cutaneous Use of Radio Active Substances, Especially Actinium.*
6. Joachimsthal. *Derangements of the Periosteum and the Endochondrium in Bone Formation.*
7. Göppert, F. *The Treatment of Acute Spastic Bronchitis at the Onset.*
8. Tomaszewski, E. *The Cultivation of the Spirochaeta Pallida.*
9. Kolb, K. *Antimeristem. (A Chemical Treatment for Inoperable Cancer.)*
10. Lindenmayr, J. *The Treatment of "Colds" and Their Complications.*

No. 18. April 29, 1912.

1. von den Velden, R. *The Chemical Treatment of Neoplasms.*
2. *Falk, E. *The Roentgen Ray Treatment of Myoma.*
3. *Gräfenberg, E. *The Specific Influence of the X-ray on Myomatous Tissue.*
4. Alexander, W. *The Mistaken Diagnosis of Sciatica.*
5. Plew, H. A. *A Case of Pelvic Sarcoma with Metastasis in the Left Breast.*
6. Zweig, A. *The Progress of Diagnosis and Prognosis in Psychiatry.*
7. v. Tobold. *Recent Advances in Technic.*
8. Proescher, F. *Report of a Case of "Ratbite Disease."*

2. As a result of the author's experience with the x-ray in the treatment of myoma of the uterus he has arrived at the following conclusions: 1. Myomata, which do not cause great flowing and weakness, require no treatment and should not receive the x-ray. They need however constant observation as to their growth. 2. Rapid growth of the myoma is a contraindication for the use of the x-ray. Such myomata need, unless there is a demonstrable heart lesion, operation. 3. Sub-mucous myomata are not suited for x-ray treatment. 4. In young women such myomata, which cause considerable flowing, should be operated on, and only in the exceptional case be treated with the x-ray. The aim of the x-ray treatment is to bring about a premature climacteric, and operation permits the preservation of the ovaries. 5. Myomata with a disease of the adnexa should receive the x-ray treatment only with the greatest caution. When severe inflammation is present it is contra-indicated. 6. Favorable indications for the x-ray treatment are the interstitial myomata in women over fifty, where there is no strong indication for operative intervention.

3. The observations of this writer are of interest taken in conjunction with the foregoing paper. He believes that the x-ray, as well as bringing about a premature climacteric, has a specific influence on the myoma cells also, and he points out, that unless the ovaries have an internal secretion, which continues to be effective long after the natural climacteric, and especially on the uterus itself, that treatment after the natural climacteric would be unavailing, whereas he has seen distinct good result from the x-ray treatment long after the climacteric. [J. B. S., Jr.]

Wiener Klinische Wochenschrift. No. 31. August 1, 1912.

1. Weisz, M., and Weisz, A. *The Value of the Urochromogen Test in the Determination of Indications for Tuberculin Treatment.*
2. *Baron, A., *and* Bársony, T. *Spastic Hourglass Stomach in Duodenal Affections.*
3. Rotky, K. *A Contribution on Infection with the Micrococcus of Gonorrhea (Neisser).*
4. Polland, R. *Lichen Ruber Planus Cured by Salvarsan.*
5. Löw, L. *The Treatment of Syphilis.*
6. Pollak, F. *Cholera on the Austrian Coast in 1911 and Its Maritime Prophylaxis.*

2. The authors believe that in many cases spastic hourglass stomach belongs to the Röntgen syndrome of duodenal affections. If together with the hourglass stomach there exist symptoms characteristic of duodenal affections, and if the stomach is empty after six hours, a duodenal affection uncomplicated with organic gastric change may be assumed. [R. M. G.]

Deutsche Zeitschrift für Chirurgie. Band 115. Heft 1-4. May, 1912.

1. *Haehner, A. *Momburg's Constriction Belt.*
2. *Zesas, D. G. *Non-operative Injuries of the Thoracic Duct.*
3. *Keppler, W. *Phlegmon of the Tendon Sheaths, with Especial Attention to Hyperaemic Treatment.*
4. *Thies, A. A. *A Further Communication Concerning the Suction Treatment of Infected Wounds and Wounds Where There is a Suspicion of Infection, in a Sterile Sand Bath.*
5. Mangus, G. *Further Researches Concerning the Incubation Period for Peritoneal Infection.*
6. Kimura, N. *The Tensile Strength and the Resistance of Tendon Sutures.*
7. Winiwarter, J. R. *Dislocation of the Astragalo-Scaphoid and the Tarso-Metatarsal Joints.*
8. *Simon. *Gunshot Wounds of the Heart.*
9. *Mettin, W. *The Surgical Treatment of Acute Pancreatitis.*
10. Deutschländer, C. *Diphtheritic Infection of the Skin and of the Underlying Tissue.*
11. Kawamura, K. *Tabetic Osteo-arthropathy.*
12. Prange. *Chyle as the Contents of a Hernial Sac.*

1. The author reviews the results which have been reported by various writers for controlling hemorrhage below the waist line, by means of the Momburg method of winding a heavy rubber tube around the abdomen to constrict the abdominal aorta. Several

hundred cases have now been reported, mainly hemorrhage from obstetrical or traumatic wounds. The method, according to the author, has the advantage of speed, simplicity, and the non-contamination of the injured part itself. It does however throw increased work on the heart and should not be used when a valvular lesion exists. Exophthalmic goitre also contra-indicates it use. Most of the ill effects come apparently from not observing the cautions which Momburg propounded. Great care should be taken in not restoring the circulation too rapidly, and it was through the careless observance of this dictum that most of the experimenters got into trouble.

2. This article might be called a sequel to one published by the same author in the *Deut. Zeit. für Chir.*, Jan., 1912, 113 Band, p. 197, and which was reviewed in the BOSTON MED. AND SURG. JOUR. This article dealt with the operative injuries to the thoracic duct. In the present article 24 cases have been collected from the literature extending back to 1663. Four were gun-shot wounds, two knife wounds, six from vertebra or collar-bone fractures, three from rib and vertebra fractures combined, and seven from contre-coup. Seventeen of the cases had chylothorax, and one chylous ascites as a result. Of the chylo-thorax cases, ten were right sided, four were left sided, and three double sided. Twelve of the cases died, eleven recovered, and one not stated. Pressure on the lungs or exhaustion as a result of the loss of body fluids was the cause of death. Thoracotomy is preferable to thoracentesis, owing to the continued reaccumulation of the fluid.

3. The author has written a very long article, most of which is a recapitulation of what is already well known. The article serves to call attention further to the use of hyperæmia in the treatment of sepsis, and the fact that if this treatment is to be successful, time and expert care are essential. If the treatment is successful there is much less mutilation than with extensive incisions.

4. The use of sand-baths for the treatment of sepsis is simply another method of causing hyperæmia, plus the slight capillary attraction which the sand exerts on the pus. The technic is fully described by the writer, and the results obtained are said to be very good.

8. The author reports the case of a soldier who shot himself through the heart and who was seen by the surgeon twenty minutes afterwards. Immediate operation was decided upon, and after iodine sterilization and under chloroform anesthesia the wound was enlarged, the pleural cavity opened and tamponed, and then the pericardium opened and a small wound in the left ventricle sewed up with silk sutures. The patient recovered well. Forty-five cases of a similar nature are summarized by the writer and he emphasizes the tolerance of the heart to surgery. He believes some form of positive pressure apparatus to be essential, and also careful sterilization of the skin before operating, as many of the cases that he looked up died of sepsis. He points out the great advance made in the surgery of the heart and believes that immediate operation affords the best opportunities for favorite results.

9. The author has analyzed twenty-four cases of pancreatitis which have come under his observation and which were operated on. Dividing them into two groups, with and without necrosis, the mortality in the first group was 71% and in the second group 66%. The diagnosis was often confounded with ileus owing to the intense pain in the upper abdomen, the vomiting and the fact that the bowels had often not moved for several days. His conclusions are as follows: The very acute cases of pancreatitis with severe symptoms of collapse have an extremely unfavorable prognosis. The general poor appearance and condition of the patient is not in direct proportion to the severity of the pathological changes found in the pancreas. Subacute cases without severe symptoms of collapse have a much better prognosis, even if areas of necrosis are found at operation. Early operation is advisable in every case, because patients without operation almost certainly die, and a prolonged wait guarantees no diminution of the symptoms of collapse. [J. B. S. JR.]

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VOL. 98. PART 3.

27. BÉBER, K. *Gangrene of the Proximal Intestinal Stump after Resection of the Colon.*
28. *KÜMMELL, H. *The Surgery of Nephritis.*
29. SUZUKI, T. *The Experimental Production of Gastric Ulcer.*
30. SPRENGEL. *The Treatment of Coxa Vara Traumatica by Means of Reduction and Extension.*
31. MÜNNICH. *Colon Bacillus Infections of the Kidney.*
32. GOEPEL. *The Method of Extirpation of Cancer of the Colon Combined with Preventive Stripping of the Peritoneum.*
33. DEJRNSHINSKI, S. F. *The Surgical Treatment of Dilatation and Ptosis of the Stomach.*
34. RIEDEL. *The Present Condition of Eighteen Cases of Ulcer of the Lesser Gastric Curvature Treated by Removal of the Mid-Portion of the Stomach.*
35. *VON REUTERSKIÖLD, A. *Experiences in the Treatment of Non-Tuberculous Wounds and Ulcers by Pfannenstiel's Method.*
36. LEXER, E. *The Realization of Free Tendon Transplantation.*
37. TILMANN. *The Question of Brain Pressure.*
38. CLOETTA, M. *The Physiology and Pathology of the Pulmonary Circulation and Their Importance in Intrathoracic Surgery.*

28. In an article well worth reading, Kümmell reviews somewhat briefly the pathology and symptoms of the various types of nephritis, giving occasional cases as examples. He finds use for surgery in some phase of all these types. In acute nephritis due to scarlet fever or to the effect of poisons such as carbolic acid, the splitting of the capsule or nephrotomy will lessen the permanent destruction and may be the means of saving life in cases of otherwise fatal anuria. In eclampsia, anuria is an indication for decapsulation. For acute pyogenic infections, including the severer forms of pyelitis, are the most favorable cases for operation. In the field of chronic nephritis, decapsulation or nephrotomy is of value in nephritis dolorosa, in hemorrhagic nephritis and in Bright's disease.

35. In this article Pfannenstiel's technic is described. The substance with which he clears up his infected wounds is "Iodalkali," from which, by the addition of acetic acid, free iodine is liberated. Von Reuterskiöld has had excellent clinical results from its use, both in acute and in chronic suppurations. [G. G. S.]

VOL. 98. PART 4.

39. KATZENSTEIN, M. *Synovial Strangulations and Their Treatment, with Particular Reference to the Interposition of the Injured Meniscus in the Knee-joint.*
40. EXNER, A. *Perineal Hernia.*
41. FINSTERER, H. *The Treatment of Volvulus of the Sigmoid Flexure.*
42. *HARZBECKER, O. *Metastatic Perinephritic Abscess.*
43. ROST, F. *The Anatomical Basis for Peristalsis of the Colon.*
44. SALZER, H. *Diplococcus Peritonitis.*
45. NYSTRÖM, G. *Clinical Work on the Osteoplastic Closure of Defects of the Lower Jaw.*
46. TIEGEL, M. *Operative Infection of the Pleura and Thoracic Drainage.*
47. FRANK, F. *Attempts at Permanent Drainage of Ascites.*
48. HELSTED. *The Treatment of Traumatic Pseudo-Meningocele.*
49. ROSENSTEIN, P. *The Treatment of Cirrhosis of the Liver by the Formation of an Eck's Fistula.*
50. KANSCH, W. *Freund's Operation in Apical Tuberculosis.*

42. Harzbecker reviews the entire subject of perinephritic infection, and reports thirty-one cases of abscess operated in Körte's clinic. He lays stress on the finding of the cause of infection, which often is some simple inflammation such as a paronychia, furuncle, or carbuncle. Several in his series occurred after childbirth, others after empyema, pneumonia, cholelithiasis, gastro-enteric disturbances and gonorrhœa. At times the organism may be isolated from the urine. Urinary examination, if carefully done, is likely to show a few blood cells, casts and leucocytes. Ten of his cases were situated on the posterior renal surface, eight at the lower, six at the upper pole, once in front and twice all about the kidney.

[G. G. S.]

Obituary.

MAURICE HOWE RICHARDSON, M.D.

Dr. Maurice Howe Richardson, who died in Boston on July 31, 1912, was born at Athol, Mass., on December 31, 1851. While he was still young, his family moved to Fitchburg, Mass., and his school life was spent in that city. From the Fitchburg High School he entered Harvard College in 1869, and graduated with the class of 1873.

After leaving college, he taught for a time in the Salem High School, and there met Dr. E. L. Peirson, who interested him in the study of medicine. Under Dr. Peirson's instruction, he covered the first year's work in the Harvard Medical School, and in 1874 was admitted to the second year class, obtaining the degree of M.D. in 1877. He early received an appointment as surgical house officer at the Massachusetts General Hospital, but resigned before completing his service in order to take the position of assitant in anatomy at the Harvard Medical School. He immediately began also the practice of his profession in Boston, which he pursued with unremitting zeal and unflagging enthusiasm till the day of his death.

In 1882, Dr. Richardson was appointed demonstrator of anatomy at the Harvard Medical School and surgeon to out-patients at the Massachusetts General Hospital. In 1886 he was made visiting surgeon. He became assistant professor of anatomy in 1887, assistant professor of clinical surgery in 1892, professor of clinical surgery in 1902, and Moseley professor of surgery in 1903. He was appointed surgeon-in-chief of the Massachusetts General Hospital in 1911. He was also consulting surgeon to a number of hospitals in various parts of New England.

Dr. Richardson was a member and in 1902 was president of the American Surgical Association. He was also a member of the American Medical Association, of the International Surgical Society, of the Southern Surgical and Gynecological Association, of the American Academy of Medicine, of the Boston Society for Medical Science, of the Obstetrical Society of Boston, and of the Boston Medical Library, a Fellow of The Massachusetts Medical Society, and an honorary member of the Aesculapian Club of Boston. He was a prolific writer on surgical topics and a frequent contributor to the Journal and to other medical periodicals.

Of Dr. Richardson's hospital service, of his skill as a surgeon, of his enthusiasm and charm as a teacher, there is little need to speak. His memory will be always affectionately cherished by hundreds of former patients whom he helped and encouraged, and of students to whom he gave the inspiration of his rich personality. The professional side of his nature was known to all with whom he came in contact, and his sympathy and humanity went out equally to all. But there were more intimate qualities of his character as a man that could be revealed only to those privileged to know him more closely, such as his keen love of music and of everything in the wonderful outdoor world. All these were fused in the glow of his personality into an intense zest of action and joy in life.

An editorial appreciation of Dr. Richardson's life and work has already been published in the issue of the Journal for Aug. 8 [Vol. clxvii, p. 207]. The following quotation from a letter to the daily press by Dr. George W. Gay of Boston affords an estimate of his character and services by one of his coevals.

"Dr. Richardson was kindness personified. He never refused his services to a worthy person by reason of poverty. Like all prominent surgeons, he did an immense amount of charity work. Sixty years old by the almanac, but twice that age in good works and in his useful life. He will take high rank with those great surgeons who have done so much for the enviable reputation of the Massachusetts General Hospital, the Warrens, the Bigelows, the Cabots, as well as with many others in this community who have done so much for American surgery, as the Thorndikes, the Cheevers.

"Bold and progressive, yet conservative; impulsive, yet reliable; modest, yet determined; positive, yet tender; overworked, yet considerate; never too busy nor too tired to help anyone needing his services, Dr. Richardson was a rare man. He was a lovable man. Everybody was his friend. His death has left a void in the medical profession which will be hard to fill, and a void in the hearts of his friends that will never be filled."

Dr. Richardson's funeral services were held at King's Chapel, Boston, on Friday, August 2. He is survived by his widow, by two daughters, and by four sons.

T. B. McCLINTIC, M.D.

On Tuesday of last week, Aug. 13, at Washington, D. C., Dr. T. B. McClintic, of the United States Public Health and Marine Hospital Service, died of Rocky Mountain spotted fever, contracted while he was engaged in studying the disease in the Bitter Root Valley of Montana. He was born at Warm Springs, Va., in 1873, was a graduate of the University of

Virgina, and had been in the Public Health Service since 1897, having attained the rank of passed assistant surgeon. From the first he showed himself a man of distinction and promise as an investigator. His work on spotted fever, which has been noted from time to time in the columns of the JOURNAL, began two years ago. He made himself an expert authority on the disease, and devised and initiated methods which, if pursued, will lead to its ultimate eradication in the regions of the West where it prevails. His own death is an example and warning of its dangers and fatality to man. He is survived by his widow, to whom he had been married but a few months. He died, like a soldier and a good physician, at his post of duty, in service for the good of mankind. The blood of its martyrs is the seed of medical science.

Miscellany.

JAMES SKILLEN.

THE old landmarks are always passing, of course; but now and again a landmark passes which even to the eyes of modern irreverence seems almost to mark an era. "Jim" Mains, chief ward tender of the Massachusetts General Hospital, was such an one; and now "Jim" Skillen, the famous janitor of the Harvard Medical School, is dead. The two old men were contemporaries, rivals and cronies. For nearly fifty years they were familiar friends of Harvard teachers and students of medicine.

"Jim" Skillen united the generations. One sees him now,—stout, bustling, laconic, gray-bearded, alert, with twinkling eye and ready word. He was a depository of accumulated wisdom, quoting Hippocrates and Henry J. Bigelow. Some counted him a "character" and a wag. Perhaps he was so. But he was earnest and loyal, too. He was a conservative and he swore by the old traditions. Among his friends his fund of anecdote flowed, sweet and bitter, pathetic and unprintable,—for in a fashion he was a product of the laboratory and the dissecting room, as well as of the amphitheatre and the hospital ward. "Dr. Bigelow was a great surgeon," he said; "but he was too proud of that beard." "Look at him," he muttered, pointing to Maurice Richardson's figure disappearing in the elevator, "What a man! He'll forget his bonnet next—But a good young fellow; he's all right, and he'll get there too."

"Jim" Skillen knew us all, and he never forgot a face. He presided over the Boylston Street buildings throughout their Harvard life. With every outgoing class he was photographed. By young students he was regarded almost equally with the sedate and popular Bowditch; and he was cheerfully familiar but respectful with Holmes and Minot, with Homans and with Dwight.

We have missed him in those great, new Longwood buildings which he professed to hold in contempt. Peace to his ashes. Among the shadows of the past he is not least. His life was honorable and his service true.

RECENT DEATHS.

DR. HERBERT NORRIS, who died recently at Rochester, Minn., was a graduate of the University of Pennsylvania, and formerly practised his profession in Philadelphia.

DR. THEODORE HAUSMANN, of Washington, D. C., died in that city recently, at the age of 91.

DR. FREDERICK F. HOYER, said to be the oldest physician in active practice in the State, died on August 16, from cardiac disease, at his home in Tonawanada, Erie County, N. Y., at the age of 91 years. He was graduated from the medical department of the University of Buffalo in 1849.

DR. FRED C. MERRILL, who died last week at Quincy, Mass., was born in Salem, Mass., on Oct. 15, 1859. He graduated from the Tufts Dental School in 1883, and after settling for a time at Lynn, Mass., he went abroad in 1886, and for the next 12 years continued the practice of his profession in Switzerland, Germany, and Italy. On his return to the United States in 1898, he was appointed assistant professor of dentistry at Tufts, and held this position until his death. He is survived by his widow and by three sons, two of whom are dentists.

DR. MONOYER, formerly professor of opthalmology in the faculty of medicine of the University of Lyons, France, died in that city recently.

DR. EDMUND VON NEUSSER, professor of internal medicine at the University of Vienna, died in that city recently.

DR. H. STUART NOLAN, of Somerville, Mass., who died at Brookline, Mass., on Aug. 18, was born at Providence, R. I., in October, 1883. He received the degree of M.D. from the Tufts Medical School in 1906, and since that time had practised his profession in Somerville. He is survived by his widow and by an infant son.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, AUGUST 10, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	7	2
Chicago	594	211	Waltham	5	3
Philadelphia	—	—	Brookline	8	3
St. Louis	—	—	Chicopee	12	6
Baltimore	—	—	Gloucester	8	3
Cleveland	—	—	Medford	4	2
Buffalo	—	—	North Adams	6	2
Pittsburgh	—	—	Northampton	7	2
Cincinnati	—	—	Beverly	4	1
Milwaukee	—	—	Revere	5	1
Washington	—	—	Leominster	2	—
Providence	—	—	Attleboro	5	1
Boston	191	55	Westfield	9	3
Worcester	38	18	Peabody	3	1
Fall River	31	18	Melrose	6	1
Lowell	27	15	Woburn	3	1
Cambridge	18	3	Newburyport	5	1
New Bedford	43	23	Gardner	—	—
Lynn	24	13	Marlboro	3	0
Springfield	31	5	Clinton	3	1
Lawrence	—	—	Milford	—	—
Somerville	15	7	Adams	5	2
Holyoke	—	—	Framingham	—	—
Brockton	17	5	Weymouth	3	1
Malden	—	—	Watertown	5	2
Haverhill	14	4	Southbridge	—	—
Salem	15	4	Plymouth	4	1
Newton	9	7	Webster	—	—
Fitchburg	9	5	Methuen	1	—
Taunton	15	8	Wakefield	2	—
Everett	8	1	Arlington	1	—
Quincy	—	—	Greenfield	6	—
Chelsea	3	—	Winthrop		

Original Articles.

ACQUIRED HALLUX VALGUS: LATE RESULTS FROM OPERATIVE AND NON-OPERATIVE TREATMENT.

BY CARLETON B. METCALF, M.D., CONCORD, N. H.

From the Orthopedic Department of the Massachusetts General Hospital.

Hallux Valgus: a name "applied to outward displacement of the great toe." Thus, tersely, Bradford and Lovett.[1] The phrase connotes much more than this, however. In a well-developed case of hallux valgus, the point of deviation is marked by a protruberance of the metatarsal head, crowned perhaps by a bunion; the second, third and fourth metatarsals lie similarly in valgus, though always in minor degree, while the fifth toe points toward the middle line; the smaller toes are bunched and often over-ridden or under-ridden by the first phalanx; the anterior arch of the foot has slumped badly, is convex rather than concave, and is covered with tough, calloused skin; the proximal phalanges, sometimes even that of the big toe, rear their further ends upward into a position approaching hammer-toe, while their nearer ends are pressed to the ground, thereby obliterating the anterior arch; the extensor tendons are tense in an effort to take up slack; the extensor and flexor tendons and the flexor sesamoids of the big toe are displaced outward; flatness of the longitudinal arch may but need not coexist.

Pronation occurs in eight-tenths of the cases. It may be a cause of hallux valgus, a result, or, what is more likely, part of a general process. Eversion of the foot is nearly always present to such an extent that the propulsion, in walking, falls not on the big toe itself but on the head of the first metatarsal. In such cases the flexor proprius hallucis functions little. A forward push depends on the last four toes. Overlapping of the small toes is a common defect. Bunions occur in from one-half to two-thirds of the cases. Hammer toes coexist in more than one-half. Where one foot alone is involved, there seems to be no great choice between the right and the left. The affected foot is usually flexible. Its longitudinal arch is often more or less broken down, but this lesion is not nearly so common as flat anterior arch. The "hallux valgus gait" might fairly be described as that in which the patient stumps stiffly on his heels in an effort to remove weight from his tender anterior arches. Most of the patients complain, not of the hallux valgus, but of "pain in the foot," "pain in the front part of the foot," "flat foot" and the like. Finally, hallux valgus is a prerogative of women.

Tabulation will make these points more concise. For comparison, I have added when possible, Wilson's[2] figures:

	M. G. H.	WILSON.
Females	66%	80%
Foot pronated	93%	80%
Foot flexible	75%	
Long arch flat	65%	
Anterior arch flat	95%	
*Bunion	68%	48%
Hammer toes	64%	
Exostosis of first metatarsal		93%
Big toe overlaps		10%
Small toes overlap		81%

X-ray pictures show that the first metatarsal constantly diverges inward, so that there is an abnormally wide space between the first and second metatarsal bones, (Fig. A.) I cannot find (forty plates) evidence of rotation or dislocation of the cuneiform bones. It is not uncommon, however, to have the internal cuneiform exuberant at its outer border, so that it forms an oblique base for the diverging metatarsal. While this exuberance is not necessarily confined to cases of hallux valgus, may it not at times be, as suggested by Ryerson,[41] an exemplification of Wolff's law? I quote from Whitman:[3] "Every change in the form and function of the bones or of their function alone is followed by certain definite changes in their internal architecture, and equally definite secondary alterations of their external conformation, in accordance with mathematical laws." There may be, further, a separate wedge-shaped bone, the intermetatarseum, (Fig. B.) between the internal cuneiform and the first metatarsal. Young[4] describes its presence in seven of one hundred and thirty-four preparations. The distal head of the first metatarsal shows habitual enlargement and hypertrophy, usually supero-internal,—accentuated by the outward displacement of the first phalanx, which rests on the outer corner of the metatarsal head. Later on this protruding head is destined to become eroded, so that it bears more than passing resemblance to the type found in a chronic arthritic joint. The sesamoid bones about the head become conspicuous.

This valgus deformity allows contraction of the outer side of the capsule in the involved big toe joint. Conversely the inner capsular ligament stretches, and as it does so, pulls off bits of periosteum from the metatarsal head,—one cause of exostosis and enlargement. The cartilage of the head becomes more and more uncovered; the adjoining skin, if pressed on by a shoe, thickens and becomes tense. A bursa appears. It may be a true bursa, its cavity lined with epithelium, or sometimes apparently just an out-pocketing of the metatarso-phalangeal synovia. Infection of this bursa makes operative treatment difficult.

The etiology of the deformitory has been a subject of much discussion. Thus it has been attributed to trauma of the metatarso-phalangeal joint (Payr[5]); to flat-foot (Goldthwait[6]);

* Under bunions, Wilson includes only lesions which have a definite bursitis with inflammation. His percentages are based on one hundred and fifty-two feet of asylum patients; the M. G. H. percentages on seventy feet (average) of a hospital clinic.

to loss of muscle equation (Nelaton[7]); to the intermetatarseum (Young[4]); to softening of the internal lateral ligament (Malgaigne[8]); in congenital cases, to intrauterine pressure. Members of the French school (Perrin,[9] Leriche,[10] Leborgne[11]) are convinced that a local tubercular arthritis is often a prerequisite lesion. Clarke[12] thinks it suggestive that fifty per cent. or more of his patients had an accompanying chronic arthritis. On this point I find that two patients (of sixty-three) in our clinic stated that the hallux valgus was part of an acute infectious arthritis which had dragged on into the chronic stage; two had had previous attacks of infectious arthritis but were entirely recovered; a third two, at the time of examination, were afflicted with chronic hypertrophic arthritis; one patient was firm in the belief that his hallux valgus was a sequel of an attack of tonsillitis. With this evidence, I cannot substantiate Clarke's statement.

Granting that weakness of the muscles, and tendons or rachitic deformities may predispose (Clarke,[12] Sheldon[13]), it would seem from our cases that the active factor in acquired hallux valgus is improper footwear. A pointed, narrow toe has been a consistent agent in displacing the phalanges and flattening the anterior arch. A high heel pushes the foot forward with more than ordinary force. A short shoe adds hammer toes, a condition with which hallux valgus is intimately associated. Valgus once existent, the pull of the displaced tendons is unfavorable for replacement. We are dealing, indeed, with a mechanical problem, for which an ounce of prevention, through the early employment of shoes which allow proper weight bearing, would seem to be intelligent treatment. Such shoes will hereafter be referred to as "orthopedic shoes" despite the fact that many shoes so labelled have not this essential characteristic.

For the sake of completeness it has seemed best to include the foregoing details, none of them especially new. The present paper is concerned not immediately with the pathology nor with speculation as to the etiology of the disease, but rather with the question of proper treatment. Given a case of hallux valgus, should treatment be operative or non-operative? If operative, what technique has preference? What is the most expeditious after-treatment? What are the end results?

To answer sundry questions of this type all of the available cases of hallux valgus (about one hundred) were selected from the files of the Massachusetts General Hospital. Of the patients thus chosen, it has been possible to trace sixty-three, representing one hundred and ten feet. Most of the patients thus traced were examined in person; where this was impossible, the patient answered by letter a set of categorical questions designed to show the exact status of the deformity at the time of writing. In practically every case more than a year had elapsed since the patient was enrolled in the clinic. Of the one hundred and ten feet, forty received palliative treatment. Seventy feet were subjected to operation.

NON-OPERATIVE TREATMENT.

Non-operative treatment has been aimed at alleviation of symptoms referred to the longitudinal or anterior arches. Little has been done for the hallux valgus itself; to two feet toe-posts were applied without obvious effect. If a tender bunion has been present, its cure has been problematical; in only one of ten feet was there cessation of tenderness.

In the several instances, non-operative treatment consisted of padding with felt, strapping with adhesive plaster; the fitting of plates; insistence always on proper shoes; administration of high frequency electricity, of hydrotherapy and of salicylates.

Felt pads and adhesive straps serve only as temporary measures to relieve acute symptoms of foot strain. A pad incorporated in a leather cuff is disadvantageous in that it tends to slip forward from its proper position. For permanent relief resort has usually been made to some form of plate. Plates take commonly one of two shapes: a broad, square plate designed to support the longitudinal arch or, secondly, a plate with a definite elevation beneath the anterior third of the metatarsal bones which supports the metatarsals and thereby removes pressure from a fallen, tender, anterior arch. The longitudinal elevation not only bolsters up a flattened, pronated foot, but also, if it be fairly high, relieves partly the first metatarso-phalangeal joint of its function as one of the chief points of weight-bearing (Nutter[40]).

A broad, square plate was made for eight of the forty non-operative feet. For three feet, which were fairly well arched anteriorly, the square plate sufficed; in five cases this type of plate gave no relief. Three of the five were modified so that they elevated the anterior arch, —with benefit to the patient. An anterior arch plate proved to be the most practicable method for routine treatment. It was used initially for twenty feet and caused considerable or complete freedom of symptoms for nineteen, all afflicted with non-functioning anterior arches. In three mild cases these plates were subsequently omitted. With proper footwear the patients got along very well.

Modelling a plate requires great care and perseverance. Thus seven feet complained that the plates were painful. An eighth wished that his plate came further forward. An infinitesimal error in the elevation of the plate, especially its anterior portion, makes much for the discomfort of the pedestrian. It has been necessary frequently to modify either the anterior or the lateral elevation several times before the happiest height has been procured. Care must also be taken that the patient does not try to

wear the right plate in the left shoe and vice-versa.

Twelve feet were never fitted with plates and were not relieved by other treatment. Thomas heels were employed four times; high frequency once; aspirin once; massage and hydrotherapy, which are useful adjuncts, twice. One patient declared that he had derived more benefit from a foot powder than from all our "tinkering."

To resort again to tabulation:

Non-operative cases	40
Tender bunions	10
Tender bunion relieved	1
Feet padded with relief	2
Padded without relief	3
Feet plated	28
Square plates with relief	3
Square plates without relief	5
Anterior arch plates with relief	19
Anterior arch plates without relief	1
Plates omitted because cured	3
Plates painful	7

In this series most satisfactory results were secured by fitting proper plates, which usually took the form of the so-called anterior arch plates. Aside from the prescription of orthopedic shoes little was done to alleviate symptoms immediately referable to a tender bunion. By these measures three feet were permanently cured and a majority of the remainder greatly relieved. Non-operative treatment, however, is appropriate only for patients who have mild symptoms, who refuse operation, or who are believed to be poor operative risks. It is inadequate for patients who are badly crippled.

OPERATIVE TREATMENT.

Moderate diligence has unearthed fifteen operations for the cure of hallux valgus, as follows:

1. Schede.[14] Excision of bunion. Resection of exostosis from head of first metatarsal.

2. Wilson.[2] A similar operation: resection with forceps and chisel of all that part of the metatarsal head that protrudes beyond the phalanx. The phalanx is straightened and splinted in extension.

3. Hueter.[15] Resection of head of first metatarsal. This operation was probably first performed by Hamilton of New York in 1873, for non-suppurative hallux valgus. (Rose).[42]

4. Rose.[16] Excision of first metatarso-phalangeal joint. Keller[39] also advocates this operation.

5. Porter.[17] Removal of three-fourths of the articular surface of the head of the first metatarsal, at such an angle as to include the enlarged inner tuberosity. Division of extensor tendon.

6. Mayo.[18] Curved incision, base down, over inner side of first metatarso-phalangeal joint. Skin flap lifted. Horse-shoe incision around bursa. Resection of head of first metatarsal (Hueter). Bony stump rounded. Bursal flap turned into the joint and held with two chromic catgut sutures.

7. Barker.[19] Wedge-shaped osteotomy of the first metatarsal just behind its head.

8. Reverdin.[20] Same operation, with additional resection of exostosis from head of first metatarsal.

9. Riedl.[21] Wedge-shaped osteotomy (base outward) of the internal cuneiform bone. Straightening of first metatarsal. Tendon of tibialis anticus preserved.

10. Young.[4] Removal of triangular intermetatarseum,—a supernumerary bone at the antero-external corner of the internal cuneiform. Foot in equino-varus. Big toe splinted. Pad between first and second toes.

11. Delbet.[22] Resection of exostosis on head of first metatarsal. Tendon of extensor proprius hallucis sutured to periosteum at inner side of phalanx.

12. Weir.[23] Similar operation, save that extensor tendon is severed before transplantation and that the sesamoids are removed.

13. Rath.[24] Similar to Weir's, except that Rath transplants the tendons of both the extensor and flexor of the big toe.

14. Ullmann.[25] Similar to Weir's except that Ullmann cuts the flexor tendon and swings it dorsally into the extensor tendon.

15. Halstead.[26] Resection of head of first metatarsal. Extensor tendon fastened well down on the inner side of the first phalanx without severing its attachment beyond. The posterior portion of the extensor sheath is divided three-fourths of an inch proximal to the metatarso-phalangeal joint. The reflected slip of sheath is brought down into the joint over the stump of the metatarsal bone.

A study of these various methods shows that two operators excise the metatarso-phalangeal joint; three excise the metatarsal head; while eight believe it is necessary merely to extirpate the inner bony overgrowth. Four men correct the deformity indirectly; two by osteotomy of the metatarsal, one by osteotomy of the cuneiform bone, one by removing the intermetatarseum. In four instances the extensor tendon is transplanted, the flexor tendon in two. Three operators advocate removal of the sesamoid bones from the flexor tendon. Three turn a flap into the denuded joint cavity.

From the hospital clinic I have been able to study the results of only a few of these operations, to wit:

1. Wilson	4 feet
2. Barker	5 feet
3. Porter	3 feet
4. Hueter	42 feet
5. Mayo	13 feet
6. Hueter operation plus removal of sesamoids	1 foot
7. Hueter operation plus section of extensor proprius hallucis	2 feet

1. Wilson. (Schede.) Resection of exostosis from metatarsal head. In two instances where this was done, dependence is now placed, as it was before operation, on broad low plates; no elevation can be borne by the flattened anterior arches. In two instances no plates are worn. Here the big toes override and are bent sharply outward. In other words, the operation had no obvious effect. None of the big toes have been shortened and motion in the first metatarsophalangeal joints has not been hampered. Two big toes touch the ground in standing; two do not. One foot has been slightly relieved, three are unrelieved.

Wilson himself states that this operation is not applicable to all bunions; that some are cured by mechanical means or by excision of the bunion; that the method may be utilized when a bone operation is necessary, especially with existing metatarsal exostosis. In our clinic results have been unsatisfactory. My belief is that the method is not radical enough for any case demanding operation.

2. Barker. Wedge-shaped osteotomy of the metatarsal bone has proved another unfortunate experiment in this series. The several cases are as follows:

Case I. Female. Age, 40. Mayo's operation on right. Barker's on left. Right foot now well. Left big toe still in valgus with pain. Patient comes for second operation on the uncured toe.

Case II. Female. Age, 25. Both feet. After operation wore broad, low plates. No improvement. Hallux valgus persists.

Case III. Female. Age, 50. Both feet. Fair longitudinal arches, flat anterior arches. Hammer toes. Operation partially corrected hallux valgus. Wears plates and orthopedic shoes. Patient states that the operation helped but that pain still persists.

The vital defect in this operation, it seems to me, is the failure to remove bone at the site of the lesion. The alignment of the outer end of the first metatarsal is changed but the relation between the surfaces forming the metatarsophalangeal joint is unaltered. Barker's osteotomy would seem to be applicable only to very mild deformities where no bunion exists. The same assertion is valid for a simple transverse osteotomy.

3. Porter. This series includes three feet in which the inner three-fourths was removed from the head of the metatarsal bone. In none was the extensor tendon cut. In two instances the big toes were permanently straightened. All three feet were greatly relieved of symptoms. One foot needed no plate but in the other two it was necessary to provide plates to prevent pain in the flattened anterior arches.

The available data is too scanty to be of value. Porter cites as an advantage the fact that he avoids shortening and ankylosis. He straightens the toe with a mattress suture from the anterior to the posterior edges of the wound; he is eloquent in his plea for proper footwear after convalescence. Sheldon believes that this resection, with tenotomy of the extensor tendon, is adequate for aggravated cases of hallux valgus. In our clinic it has been used in mild degrees of the deformity, for which the operation would seem to be a worthy rival of the older Hueter operation.

4. Hueter. Resection of the head of the first metatarsal,—a much-mooted, radical, mutilating operation, which shortens the big toe, which nearly always straightens it and which frequently elevates it from the ground so that it cannot be used for propulsion. Rather than a disadvantage, the shortening of the big toe may be considered an advantage in that subsequent abduction from shoe pressure is less likely to occur. In our series twenty-nine feet (69%) were either cured or much relieved, two (5%) slightly relieved and six (14%) not relieved; in five cases (12%) the records do not state clearly the end results. It should be added that plates are usually essential in the after-treatment and were usually employed. In eleven instances (26%) the plates were subsequently discarded, and these patients may be considered cured; in only two of the eleven is it definitely known that the feet were flexible and well arched. In four they had not these characteristics.

Motion in the first metatarso-phalangeal joint is frequently preserved, after the Hueter operation, contrary to the belief of Halstead and others. Even where ankylosis is in evidence I can find no justification for Wilson's statement that bony union causes a recurrence of the hallux valgus and leads to persistent pain. A well preserved longitudinal arch was present in about one-third of the cases, and inasmuch as all of these were among the group "much relieved" it seems fair to refute Riedl's assertion that Hueter's operation is successful only when flat foot coexists. While it may be true that excision of the head of the first metatarsal impairs one of the weight-bearing points of the foot, and allows the other four metatarsal heads to slump, it is also true that the symptoms accruing from this pathological condition may usually be relieved by proper shoes and anterior arch plates.

After the Hueter operation the tendon of the extensor proprius hallucis is, as a rule, sufficiently tense to elevate the big toe from the ground. The Achilles tendon usually permits dorsal flexion of the foot to ninety degrees,—a point of importance in case it is desired to throw the weight on the posterior part of the foot by means of a lift in the sole. In two instances complaint was made of tenderness in a semicircular scar about the involved joint. In two instances Hueter's operation was complicated by operations for hammer toes. One toe of the forty-two became septic.

The data from which these conclusions are derived may be thus summarized:



FIG. A. Female Foot.
Marked abduction. Consider futility of any but a radical operation.



FIG. B. Male Foot. Intermetatarseum.

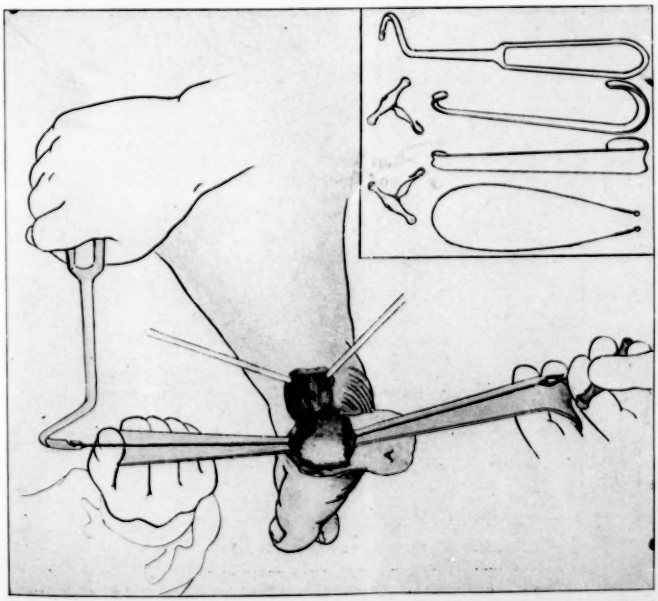


FIG. C.
Hueter-Mayo operation with Gigli saw and specially devised (Osgood) saw carrier and grooved retractors. Saw in place. Head of first metatarsal with exostoses being removed. (A). Skin and subcutaneous tissue flap. (B). Bursal flap.

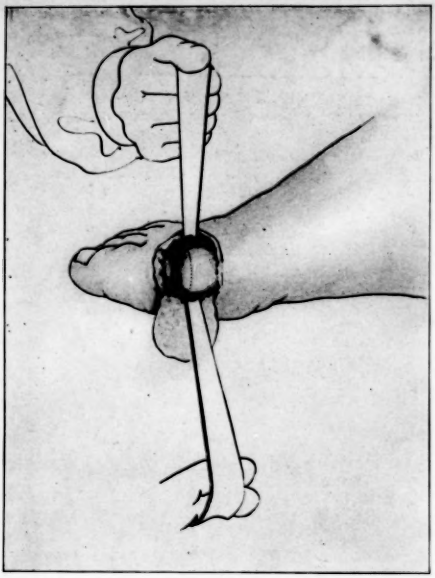


FIG. D.

Head of first metatarsal removed and sharp edges rounded. Bursal flap tucked in around stump and retained by stitches at A and B.



FIG. E. Female Foot.

Hueter's Operation. (Post-operative.) Sesamoids form a basal pad.



FIG. F. Intermetatarseum. (Dwight.)

Note that neither has caused hallux valgus.

Big toe straightened	23
Not straightened	7
Not stated	12
Big toe elevated	19
Not elevated	6
Not stated	17
Motion in first metatarso-phalangeal joint	15
No motion	7
Not stated	20
Cases of recurrent valgus and pain in ankylosed joint	None
Broad square plates with relief	2
Without relief	2
Anterior arch plates with relief	11
Without relief	4
Undefined plates with relief	5
Plates not prescribed	3
Plates not mentioned	15
Plates omitted because no longer needed	11
Longitudinal arch good	8
Longitudinal arch flat	17
Not stated	17
Feet cured or much relieved	29
Feet slightly relieved	2
Feet not relieved	6
Result not stated	5

An analysis of the unrelieved cases, a group of six feet in three individuals, is of interest:

Case I. Male. Age, 50. This patient had septic bunions and badly calloused anterior arches. He returned at the end of a year minus his plates. His symptoms were referred to the anterior arches and would perhaps not have arisen had he not been careless about the plates.

Case II. Female. Age, 32. This patient had flat but flexible feet. No bunions. After operation she was given square, broad plates. Later these were changed to Whitman plates,—probably inappropriate for these feet. Seen three years later she said that she had discarded the plates because they were of no benefit and were heavy. She referred her pain to the anterior arches but had none at the site of operation. She had caused considerable pain in her legs from an effort to wear shoes without metal shanks.

Case III. Female. Age, 37. This woman had very bad, swollen, flat, arthritic feet. Besides the operations on her big toes, it was necessary to excise the heads of several other metatarsal bones and phalanges because of bad hammer toes. She was given two different sets of plates. Three years later she still had rigid flat feet with recurrent hallux valgus and hammer toes. She stated that she could not get along without her plates but that even with them she had pain when she walked. She illustrated the fact that a surgeon often has great difficulty in coping with hammer toes.

When Hueter's operation is selected, resection is best done with a Gigli saw. Except in the hands of an expert an osteotome leaves rough edges and bony spicules. The metatarsal stump should be nearly square if the proximal phalanx is to settle comfortably into its new position. The periosteum on the metatarsal bone should not be stripped back; preservation of exuberant periosteum invites subsequent formation of bony spicules.

In our clinic Hueter's operation has met with approval. It must be remembered that plates are often required afterwards, but we have found few patients who, in view of the comfort derived from plates, objected to their weight. Hueter's (or Mayo's) has been the operation of choice if the overgrowth on the first metatarsal bone is extensive or if abduction of the big toe is marked.

5. Mayo. This operation is a refinement of the preceding,—resection of the head of the first metatarsal with the insertion of a bursal flap at the metatarso-phalangeal joint. The end results are not dissimilar from those just described. Mayo states that nearly perfect motion follows in the big toe joint. In our series ankylosis was not observed. On this point, however, the records are faulty; in nine it is not stated whether ankylosis was present or absent. Motion was surely present in only four of the thirteen cases.

Nine feet (69%) were much relieved, two not relieved, two not stated. The patient who was not relieved was a young girl of 23, with very bad anterior arches and hammer toes. Post-operative pain was referred, not to the big toes, but to the anterior portions of the feet. She was not benefited by plates, hot and cold showers, foot exercises nor by other expedients.

Mayo's modification of the Hueter operation is performed as follows:

An inverted U-shaped incision, through the skin and subcutaneous tissue, is made over the joint, its base being downward and about one inch in breadth. This skin flap is turned downward and an incision, also U shaped but with its base or open end of the U, proximal, is made through the bursa of about the same extent as the skin flap. This bursal flap is turned backward, exposing the joint. The flap should be large because it tends to contract. In making it, it is well to include the whole thickness of the bursa and to destroy one of its walls; an intact bursa usually becomes temporarily inflamed.

A blunt dissector is pushed over the top of the bone between it and the extensor tendon, while on the under surface a second dissector is pushed between bone and flexor tendon. A special Gigli saw carrier is now made to encircle the bone, care being taken to have its end hug the bone closely above and below in order not to

include the tendons. When the Gigli saw is in place, small grooved retractors are inserted to protect the skin. The saw cut should divide the bone at from three-eighths to one-half of an inch proximal to its head. (Fig. C.) The loose head and exostoses may now be seized with Rongeur forceps and twisted out, the firm attachments being divided with scissors. The end of the metatarsal should be slightly rounded off with bone cutting forceps and the bursal flap brought over it and retained in place by two sutures, one at the top and one at the bottom. These sutures unite the base of the flap to the tissue on the base of the phalanx. (Fig. D.) The skin wound should be closed with interrupted sutures without drainage, unless there has been a suppurating bunion.

In applying a dressing some form of splint which holds the toe in a slightly over-corrected position and prevents the already shortened extensor from unduly elevating it will be found to favor a good after-result. Mayo's operation is applicable to the same type of case for which Hueter's operation was suggested. It possesses the added advantage of giving freer joint motion. It is not applicable, obviously, to cases in which a suitable bursal flap is not obtainable.

We do not wish to go on record as advising these operations in all cases, nor are we certain that they are the best routine operations. They are thus more fully described because they are the operations which have been most often performed in the hospital clinic and have given the best post-operation results in this series. (Fig. E.)

Keller's modification of the Rose operation entails, likewise, the insertion of a flap. Keller, however, resects not only the exostosis on the metatarsal head but also the adjoining head of the proximal phalanx, over which he places his flap. Keller states that he has derived excellent results in the majority of his twenty-six reported cases. The procedure is somewhat more mutilating than that of Mayo. Is it not unnecessarily so?

6. Hueter operation plus removal of sesamoids. This case was much relieved. Removal of the sesamoids, however, from their bed in the flexor tendon of the big toe is probably superfluous. Indeed, it is a question if their presence does not give a somewhat firmer foundation for weight bearing after any radical operation.

7. Hueter operation plus section of extensor proprius hallucis. This case was slightly relieved. Pain persisted, perhaps because the patient did not wear plates. With a mutilating operation like Hueter's, tenotomy is presumably unnecessary. By cutting the extensor, we try to prevent this tendon, as it lies outside the median line of the big toe, from increasing the deflection of a partially abducted digit. But,—after Hueter's operation the toe can be completely straightened and the tendon can be brought practically into normal position.

Concerning other operations for hallux valgus I can give only second-hand information. Excision of the entire metatarso-phalangeal joint (Rose) is seldom practiced. It causes ankylosis and has no special advantage over the method of Hueter. Some sixteen cases have been reported by Heubach,[27] who adopts this operation for severe deformities.

Reverdin's operation of osteotomy with excision of a protruberant exostosis is open to an objection previously noted: it does not change the contour of the affected bones in the affected joint. Fowler[28] is a disciple of this method; Weir[23] and Delbe,[22] in mild cases, regard it with complaisance. Roepke[29] has analyzed twenty-three cases, from which he has concluded that the big toe is usually straightened, that symptoms are relieved and that the joint motion is conserved. He admits that abduction remains unchanged.

Of Riedl's operation,—osteotomy of the internal cuneiform,—there is little to say. Riedl[21] himself has reported only one case; in this he obtained a good result. He claims that he remedies adduction of the first metatarsal, shortens the first digit, relaxes the flexor and extensor muscles of the big toe and eliminates practically all symptoms. Theoretically, the operation should increase the abduction of the digit.

Young's suggestion,—the removal of an intermetatarseum,—is based on the supposition that, in a limited percentage of cases, this abnormal bone, lying as it does anterior and external to the internal cuneiform, impinges on the base of the first metatarsal, throws it inward and thereby causes hallux valgus. I am unwilling to accept this premise. An examination of x-ray plates of one hundred feet, in which there was no case of hallux valgus, showed one intermetatarseum. In half a dozen instances a spur on the metatarsal base occupied the position of this supernumerary bone. An examination of forty x-ray plates, in which hallux valgus was present, showed one intermetatarseum. In Dwight's[30] monograph are produced photographs of four feet showing the intermetatarseum; none show clear-cut hallux valgus. And although these are mounted specimens, it is said that the bones were mounted in the positions and relations in which they existed in the several subjects. (Fig. F.) It seems fair to state, then, as Dane[31] has already done, that the extra bone and hallux valgus seldom are found in the same foot. Is it not quite as plausible to suppose that the inward displacement of the first metatarsal is due to pressure transmitted from the tip of the outwardly displaced phalanx?

Tendon transplantations have not been generally employed in this clinic. It has been felt that tendons were not essential factors in maintaining or increasing valgus and that a transplanted tendon was unnecessary to hold a corrected position. Porter disagrees with this belief. Mayo says that transplantation of the extensor is indicated in some cases. Fowler[32]

lengthens the extensor tendon; Bauman[32] advocates simple tenotomy of the extensor, with resection of exostoses. Weight of opinion (Goldthwait,[6] Deaver [34] et al.) makes one believe that tenotomy alone is inadequate for correction.

Certain details are part of any operation that may be selected. The big toe joint may be satisfactorily exposed by a semicircular incision, base down, surrounding the bunion site. The incision need not be more than an inch broad at its base. Post-operative tenderness in the scar is exceedingly rare. Porter[17] uses a crescent-shaped incision, apex down; Syms[35] an inch long incision on the dorsum of the big toe; Fowler[28] likes the Peterson[36] incision, made longitudinally between the first and second metatarsals, which permits evulsion of the big toe. This gives a wide-open wound and allows easy access to the tendons and the external lateral ligament. Such extensive exposure is unnecessary for the operations which do not interfere with these structures.

The question of drainage should be decided for the individual case. It is ordinarily not needed. Mayo[18] drains on occasion with a double catgut strand through a punctured incision at the base of the skin flap. When bone has been excised, Wilson[2] regards drainage for forty-eight hours as a necessity.

The big toe may be held in replacement by a simple lateral cigar-box splint, by a plaster of Paris cast, by a buckskin cot (Sayre[37]), or by a metal splint, such as those devised by Painter[38] and by Goldthwait. A cotton buffer between the first and second toes is seldom satisfactory. A doughnut of felt gives added protection to a recent operation wound.

Correction must be maintained for several weeks. Passive motion in the big toe joint may be begun after two or three weeks. Proper shoes, straight on the inside, are essential if recurrence is to be avoided. Ordinarily we have recommended a shoe with a metal shank. A "flexible arch" shoe is appropriate only for feet that easily recover their poise,—for feet that have considerable elasticity. If the big toes are elevated, it is sometimes a great comfort for the patient to have shoes without box toes. If Thomas heels are prescribed, the wearer should be careful about their periodical renewal. Porter has not emphasized too strongly the importance of proper shoes.

May I recapitulate?

Hallux valgus refers to an outward displacement of the big toe,—largely from mechanical causes,—with inward displacement of the first metatarsal bone and hypertrophy and erosion of its head. Bunions and hammer toes often accompany. The longitudinal arch may drop; the anterior arch is nearly sure to do so. Oftentimes symptoms are due primarily to these defects.

By non-operative treatment, therefore, an effort has been made to hold the feet in approximately normal position; in non-aggravated cases this may be done by wearing proper shoes and plates. Other forms of treatment have proved of doubtful merit.

Advanced cases demand operation. Fifteen operations, many of them closely allied, have been devised. The operations fathered by Wilson and by Barker have not met with success in our clinic. Better results have followed employment of the methods of Porter, Hueter and Mayo, remembering always that the two latter may subsequently require plates. Other operations have not been tried, so that the value of tendon transplantation, removal of the sesamoids and like details cannot be fairly expounded. Syms'[35] dictum is worth noting: Employ different procedures for different deformities. Always operate on the deformity, not on the bursa.

Finally, the most acceptable incision, the question of drainage, of splinting, of shoes and other details of after treatment should be carefully considered for the individual case.

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CONTRIBUTIONS TO THE NEUROLOGY OF THE CHILD: II NOTE ON THE MORTALITY AND THE PROPORTION OF BACKWARD CHILDREN IN CASES OF CONGENITAL SYPHILIS FOLLOWED SUBSEQUENT TO HOSPITAL TREATMENT.

THE IMPORTANCE OF SUCH AN INVESTIGATION.

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During the past few years our attention has been focused on the treatment and diagnosis of syphilis more than ever before, and it is a natural consequence that one should turn to a study of this disease in children.

The present study was taken up as a part of a much larger investigation, in which both treatment and diagnosis of congenital syphilis are to be considered. This particular portion deals entirely with the subsequent history of a series of cases which we were able to follow up in the desire to find out the present condition of cases treated in previous years.

Out of several hundred cases which have been treated at the hospital and whose records were available, we were only able to trace about sixty cases. Many of these, as will be seen by the protocols, are too recent to judge what their final outcome will be.

The material naturally divided itself into three groups:

(1) THE ONES WHO APPARENTLY ARE MENTALLY NORMAL.

In this group there are nineteen, five of whom are of school age, ranging from six to sixteen years. All these received treatment for varying periods and at various times as stated in the protocols, but on examination they seem to be normal mentally.

There are ten cases of this class who are between two and six years of age, and it is considered rather hard to decide in these cases whether they were entirely normal or not, but in every case where there was any doubt we gave them the benefit of it. They were put through no special tests to determine their relative mentality. There are four below two years of age. It is hardly fair to judge the mentality of these, and in our percentages they will be left out,—only children of school age being considered.

(2) THE ONES WHO ARE BACKWARD MENTALLY.

In this group there are nineteen, eleven of school age, varying from six to sixteen years of age, and showing all grades of backwardness,—from those who are only slightly backward in their school grades to those who are under institutional care for feeblemindedness. There are eight between the ages of two and six. These show unmistakable signs of retardation mentally, and so can, without any question, be put into the second class of backward mental development.

(3) THE THIRD GROUP OF TWENTY-ONE ARE THOSE WHO HAVE BEEN FOUND TO HAVE DIED.

The investigation attempted to cover both the family history and the history of the individual child, whose record was in the hospital. This at times was found almost impossible as very often only meagre information could be obtained about the family and other children. All the living children were personally investigated and interrogated as much as allowed by the family. The children, however, were put through no special tests.

It is hoped that such a study can be carried out later, especially on the class of the mentally backward children.

Special emphasis was laid throughout the investigation on their mental condition, as it seemed to the writer that this was the most important thing in the future of any child: whether the child would be dependent or whether the child could, by its own intelligence, support itself.

The following histories of the various cases will show what this investigation has brought out in each case, as will also the chart in a rather more graphic and shorter way.

CASES MENTALLY NORMAL.

No. 7, three years, male.

History of Specific Infection. Snuffles was first noticed when a few days old. Skin eruption appeared when three months old. Treated for a few weeks with mercurial ointment until eruption disappeared.

Subsequent History. Has had no trouble since. His general health is very good. No signs of any specific trouble at present. Slight excess of general glandular enlargement. Mentally is apparently perfectly normal for a child three years of age. The family history, however, in this case shows that a brother now five years old is rather backward with indistinct speech and rather hard of hearing. This, however, may be due to a double otitis media, which he has had for sometime. Mother has been on specific treatment since 1906 off and on. She says she has had no miscarriages and no still-born children. Father has deserted the family.

Prognostic Outcome. In this case, it is too early to say whether this boy will be mentally normal or not; at least he has a brother who is not.

No. 10, six and a half years old, female.

History of Specific Infection. When five weeks old had typical skin eruption and snuffles, for which she received mercurial ointment, and these disappeared rapidly. She has had no trouble since except headaches at times.

Subsequent History. Goes to school in the second grade; standing is good and is considered bright.

No. 18, eleven years, male.

History of Specific Infection. When a few weeks old had typical eruption and snuffles, and was treated for a few weeks with mercurial ointment, when these disappeared. When four years old again came to hospital, complaining of headaches and general glandular enlargements. Was put on mercurial treatment again, under which he rapidly improved. He was under treatment for several months at this time, and has had no return since.

Subsequent History. General health seems now at eleven years apparently good. He is in the sixth grade at school, and his standing in his class is fair, and intelligence is counted medium.

No. 23, seven years, male.

History of Specific Infection. When a few weeks old had typical skin eruption and snuffles, for which he was treated with mercurial ointment. These disappeared very rapidly, and he has had no treatment since.

Subsequent History. General health is good. Child has not gone to school, but seems apparently normal; mentally, though, he is rather nervous.

No. 25, six years old, male.

History of Specific Infection. When four weeks old had typical skin eruption and snuffles; treated for several weeks with mercurial ointment, when these disappeared.

Subsequent History. When five years old, had severe headaches, for which he returned to the hospital, and was again put on mercurial treatment, under which these rapidly disappeared, when the child again discontinued treatment. At present, seems physically to be perfectly well. Mentally, he has not gone to school as yet, but seems bright; apparently normal for a boy of six.

No. 26, fifteen years old, female.

History of Specific Infection. When an infant had typical snuffles and skin eruption for which she was treated with some ointment, under which these rapidly disappeared.

Subsequent History. Was not seen in hospital until age of ten, when she had typical pharyngeal ulcers, for which she was treated at hospital with mercurial ointment and mercury internally. These cleared up fairly rapidly; she has been in good health ever since. At fifteen years of age, she is in second grade of high school, standing apparently good, and she seems fairly bright. She wears glasses (astigmatism and slight cloudiness of disc in left eye), and is somewhat nervous.

Prognostic Outcome. Is good both from a physical and mental standpoint.

No 29, four years, female.

History of Specific Infection. When three weeks old she developed typical skin eruption and snuffles. Symptoms disappeared under treatment rapidly. Has had no treatment since four months old.

Subsequent History. She seems at present perfectly normal physically and mentally for a child of four.

No. 30, four years, female.

History of Specific Infection. When four weeks old developed typical skin eruption and snuffles. Treated with mercurial ointment for a few weeks until these disappeared; has received no treatment since.

Subsequent History. At present, physical condition is fairly good. She has periostitis of her left tibia. No other signs of specific lesions. Mentally she seems bright; for a child of four she seems apparently normal.

No. 32, six and a half years, male.

History of Specific Infection. When a few weeks old had typical skin eruption and snuffles, had mercurial ointment treatment, which was kept up for a short period of several weeks. Has had treatment off and on since then.

Subsequent History. As skin is rough, he is subject to superficial ulcers. Is constantly under treatment. He also is subject to diarrhea, eight to ten stools per day, if not under treatment. Physically, he is not very strong; mentally, he seems to be of medium intelligence.

Prognostic Outcome. Fairly good mentally; probably poor from physical standpoint. May be dependent on account of health or may be from early secondary involvement.

No. 33, four years, female.

History of Specific Infection. When six weeks old developed typical skin eruption and snuffles; was put on mercurial treatment and kept on this off and on for the first year and a half.

Subsequent History. She has been well since then. General condition and mentality seem perfectly normal at present for a child of four.

No. 35, four years, male.

History of Specific Infection. Shortly after birth, developed typical skin eruption and snuffles; was treated with mercurial ointment, under which everything cleared up very rapidly; has had no treatment since.

Subsequent History. Now at four years of age seems apparently normal except for a slight excess of glandular enlargements.

No. 40, three years, female.

History of Specific Infection. When five weeks of age, she developed typical skin eruption, condyloma, snuffles. These cleared up rapidly under mercurial ointment treatment.

Subsequent History. When two and half months old, considered well. Has had no treatment since. At present she seems apparently normal for a child three years of age.

No. 45, four years, female.

History of Specific Infection. When a few weeks old, snuffles and typical skin eruption appeared, for which she was treated with mercurial ointment a few weeks until the lesions disappeared.

Subsequent History. At one and one-half years old she had some sores on her chin, buttocks and genitalia, for which she was treated in the hospital with mercurial ointment. They rapidly cleared up under this treatment, and she had not reported again. Present condition: Her general health is very good. She still has scars of the sores on her chin and body. Mentally, she appears moderately bright. She has not gone to school, but can talk fairly well for a child of four.

Prognostic Outcome. Rather early to judge what her mental capacity is going to be.

No. 50, one and one-half years, female.

History of Specific Infection. When a few weeks old developed typical skin eruption and snuffles; was treated for a few weeks with mercury.

Subsequent History. Has had no treatment since three months of age. Present condition: She has an anal condyloma; otherwise no signs of specific condition. General health is good and as far as can be made out at this age her mentality is within normal limits. Facial expression is perfectly nor-

mal. However, at one and one-half years of age, she has not walked.

Prognostic Outcome. Presumably within normal limits.

No. 51, fourteen month, female.

History of Specific Infection. When a few weeks old, developed typical skin eruption and snuffles. Put on mercurial ointment; symptoms disappeared rapidly. Has not been treated since.

Apparently seems to be perfectly normal. Too early to judge mental condition.

No. 59, twenty-one months, female.

History of Specific Infection. When two weeks old had typical skin eruption and snuffles, and given mercurial treatment.

Child seems apparently normal physically and mentally. Too young to judge of real condition.

No. 62, five years, female.

History of Specific Infection. When a few weeks old had typical skin eruption and snuffles, and treated with mercurial ointment.

Subsequent History. Mother died shortly after birth; father deserted at this time. Child has been under State care, and they report that she is perfectly healthy and mentally apparently normal.

No. 64, four years, female.

History of Specific Infection. When a few weeks old, child had typical snuffles and skin eruption, and treated for a few weeks.

Subsequent History. Family moved out of town, and report from family is that she is perfectly normal both as to health and mentality.

No. 65, one and one-half years, female.

History of Specific Infection. When five weeks old had typical skin eruption and snuffles; was treated continuously until nine months of age with mercurial ointment.

Has not been treated since.

Child is apparently normal.

CASES MENTALLY BACKWARD.

No. 2, thirteen years, female,

History of Specific Infection. When a baby she had typical skin eruption and snuffles. Was treated at this time for a few weeks.

Subsequent History. Again at seven years, she had trouble with her eyes,—corneal ulcerations; also about that same time had swelling in both legs and arms. At present, her general health is good. She has the old corneal scars, is wearing glasses, and has marked periostitis of the left tibia. Slight on the right. Mentally she is backward, being in the sixth grade only.

Prognostic Outcome. Unquestionably backward, but will not be dependent; probably will be able to support herself.

No. 6, twelve years, female.

History of Specific Infection. When a baby she had typical skin lesions and snuffles. Treatment lasted for a few weeks.

Subsequent History. When eight years old, she had sore eyes with corneal ulcerations; had breaking out on her neck and face and hair fell out. General glandular enlargements. Present condition: General health is apparently good; she still has general glandular enlargements; is wearing glasses; is only in the third grade, and is considered at school very inattentive and backward. The family history is: the mother has had five miscarriages, two deaths of premature infants. The oldest child, now 15 years old, has also had corneal ulcers, for which she is being treated at present. One child, five years old, has periostitis. One child died at nine years of age from what was termed "meningitis." There are six other living children who are apparently normal, according to the mother's statement, although they were not examined.

Prognostic Outcome. Physically good and mentally backward. Will probably not be dependent.

No. 9, four and one-half years, female.

History of Specific Infection. At three weeks of age developed typical skin eruption and snuffles; was treated for a few weeks with mercurial ointment.

Subsequent History. When three years old, she developed general twitching and staggering gait; was treated at that time again with mercurial ointment, and improved a good deal. Under treatment two months. At present the child can walk. No noticeable twitching; there have been no convulsions. She has had no corneal ulcerations, but is very near-sighted. Mentally she is unquestionably backward.

Prognostic Outcome. Is poor as far as intellectual development goes. Physical development apparently will go on within normal limits.

No. 11, five years, male.

History of Specific Infection. First syphilitic symptoms appeared when 13 months old with hemiplegia and epileptiform attacks. He was treated at age of 13 months for four months continuously with mercurial ointment.

Subsequent History. Hemiplegia, and epileptiform attacks continued until he was four. Wassermann reaction at that time was positive and he was given 606. Since then he has improved markedly. His physical condition is apparently normal. He is mentally very backward. Father and mother in this case had both had active treatment. Father had beginning signs of tabes.

Prognostic Outcome for this child is that certainly of backwardness, if not some form of some more serious mental condition.

No. 12, sixteen years, male.

History of Specific Infection. When a few weeks old had snuffles and typical skin eruption. Was treated with mercury.

Subsequent History. Has had apparently no return of the symptoms. Went to school and graduated from Grammar school when 16, and had just entered employment with an engraving company; at school he was considered dull; very inattentive and backward.

Prognostic Outcome. Mentality will certainly not improve. He, however, will not be a dependent.

No. 13, nine years, male.

History of Specific Infection. When a baby had typical skin eruption and snuffles, for which he was treated with mercurial inunction for a few weeks.

Subsequent History. At age of seven began to have spells of being very apathetic with marked frontal headache and marked loss of memory. He had slight staggering gait. He returned to the hospital at this time, and was treated internally with mercury and K. I. Treatment was kept up for about two months, when he again disappeared, as he had apparently improved. At present he still has occasional headaches; he has no staggering; memory has improved markedly. Otherwise, his general physical condition is apparently good. In school he was very backward; was in the third grade, and it seems impossible for him to progress.

Prognostic Outcome is unfavorable; the proba-

bility is that mentally he will not develop any more, and is very likely without treatment, to have more relapses, making him a dependent in time.

No. 14, ten years, male.

History of Specific Infection. When a few month old, had typical skin eruption and snuffles. Came to the hospital and was put on treatment, but did not follow it.

Subsequent History. At present he is in the school for Feeble-minded. His general condition is very debilitated, and his mentality is that of an imbecile of a rather low grade. The family history in this is indefinite, as there are no other children and the father deserted shortly after the birth of this child.

Prognostic Outcome. There can be nothing hoped for. The child will probably die early, as his physical condition, as well as his mental, is very poor.

No. 16, ten years, male.

History of Specific Infection. When two weeks old developed typical skin eruption and snuffles, with ulceration on face and body when seen at the hospital at two weeks of age. Treated with mercurial inunctions. Stayed on treatment only long enough for symptoms to disappear.

Subsequent History. Has not been treated since. Present condition is that the child is very small for his age, and has a very large, square head,—is very babyish in his actions and with the things with which he plays. Does not go to school because he cannot learn. Is markedly backward. Family history is that mother has had two children who died shortly after birth; there are three other children living, one of whom is very backward and has a very asymmetrical head; pupils are unequal. Mentality poor.

Prognostic Outcome. Is very poor; probably belongs to the imbecile group and should be in an institution.

No. 17, thirteen years, male.

History of Specific Infection. When a baby had typical skin eruption and snuffles. Was treated for a short time until these disappeared. At five and a half years of age again had recurrence of a slight eruption on cheeks; had swelling along the left leg, which was painful and had numerous enlarged glands. At this time he was treated with mercurial ointment and K. I., with which he has been treated off and on ever since.

Subsequent History. At present his physical condition is fairly good. Mentally he is only in the third grade, very backward, inattentive. Probably will not be promoted this year. He has only gone to school about two years in his life.

Prognostic Outcome. Is very poor mentally. Probably will be a dependent, though he may be able to earn his living in some menial fashion.

No. 19, sixteen years, male.

History of Specific Infection. When a few months old, he had typical skin eruption and snuffles. He was treated with mercurial ointment over a period of a few weeks until these disappeared.

Subsequent History. At present he has typical saddleback nose; his general physical condition is fairly good; now at 16 years of age, he can hardly read or write. Is very inattentive and backward. Has hardly gone to school at all as he did not seem able to learn. He has a younger brother who has also been unable to learn anything at school; at nine years of age still being in the first grade.

Prognostic Outcome. Is very poor mentally. Undoubtedly belongs to imbecile group, and should have institutional treatment.

No. 21, thirteen years, male.

History of Specific Infection. When a few weeks old, he had snuffles and typical skin eruption; he was treated with mercurial ointment for only long enough for these to disappear.

Subsequent History. At six years of age there was a return of symptoms with ulcers on his leg and corneal ulcers, for which he was treated with mercurial ointment. For his eye trouble he is still being treated off and on as they recur. Also has taken K. I. most of the time. Present condition: his general health is fair. He has marked Hutchinsonian teeth and periostitis of both tibia and old corneal ulcers. Child is very inattentive at school, being only in the second grade with very low standing; mentally very dull; is very nervous and inattentive.

Prognostic Outcome. Is poor mentally. Apparently a good subject for special training.

No. 24, seven years, male.

History of Specific Infection. When a few weeks old he had snuffles and typical skin eruption. Treated for a short time with mercurial ointment. Has not been treated since.

Subsequent History. Present condition: physically he is in good health. He has some speech difficulty and is very backward. Only in the first grade.

Prognostic Outcome,—that of a decidedly backward child,—probably will not be a dependent, though too early to say.

No. 36, four years, male.

History of Specific Infection. Symptoms appeared when two weeks old,—typical skin eruption and snuffles. Treatment consisted of mercurial ointment, which was continued for a very short time. Apparently has had no recurrence since.

Subsequent History. He has been apparently healthy physically. Is very nervous; has not been sent to Kindergarten. It is hard to judge his mentality,—apparently, below par. The father died of heart disease.

Prognostic Outcome. Some grade of mental backwardness. Probably not imbecile.

No. 37, three years, male.

History of Specific Infection. Symptoms typical skin eruption and snuffles when seven weeks old. Was treated with mercurial ointment and mercury internally. Treatment was continued over a very short period. Has not been followed up at all.

Subsequent History. Development of a nasal pharyngeal ulcer which perforated. He had no treatment for this. General condition, however, is fair. He cannot speak. Mentally it is hard to judge on account of his speech defect, but he seems considerably below normal. Father has beginning signs of tabes: mother has had one miscarriage, and five children died early or soon after birth. There are eight other children living; none are bright, but none apparently very abnormal from mother's description, although all the children not seen.

Prognostic Outcome. This child is certainly backward and may be some grade of imbecility.

No. 43, four and a half years, male.

History of Specific Infection. Typical symptoms of skin eruption and snuffles when a few weeks old. Treated internally with mercury over a period of a month. Has had no treatment since.

Subsequent History. He was jaundiced until he was one and a half years of age and had a large liver. Did not begin to talk until he was three years of

age. Didn't walk until he was one and a half years old. Present condition: physically is apparently normal; he does not talk very clearly yet, and mental condition is markedly backward.

Prognostic Outcome. Is probably that of some grade of imbecility.

No. 44, two years, male.

History of Specific Infection. Typical skin eruption and snuffles at two months of age. Was treated then with mercurial ointment for a few weeks. Has had no treatment since.

Subsequent History. He walked when a year and a half old. At present, when nearly three years old, can only say four or five words. Anterior fontanelle is still open; head is large; slightly hydrocephalic. He is both mentally and physically backward.

Prognostic Outcome. That of some grade of imbecility.

No. 48, two years, male.

History of Specific Infection. Had typical skin lesions and snuffles beginning when one week old. Was first treated when two and a half months of age with mercurial ointment for a very short time, returning to the hospital only twice.

Subsequent History. The general health now at two years of age is fairly good. In intelligence he appears below normal, but it is hard to judge. He is just beginning to walk; says only four or five words indistinctly. Has only 12 teeth.

Prognostic Outcome. He will probably be mentally backward—of what grade it is impossible at this time to say.

No. 52, two years, female.

History of Specific Infection. Typical skin lesions appeared during the first few weeks, and cleared up after a few weeks of treatment with mercurial ointment.

Subsequent History. She did not walk until one and a half years old. Now at two years old has only one tooth. Mentally does not seem at all bright. General health is fairly good.

Prognostic Outcome. She bids fair to be markedly backward mentally.

No. 53, nine years, male.

History of Specific Infection. When two months old, had typical skin eruption and snuffles. He was treated with mercurial ointment at this time long enough for these to disappear.

Subsequent History. He is at present in fairly good physical condition. Has marked saddle-back nose; perostitis of both tibia and keratitis. Reads with difficulty; only in second grade; speaks hesitatingly.

Prognostic Outcome. Certainly a backward mentality. Probably will not be entirely dependent.

CASES OF THOSE WHO DIED.

No. 1, died at six weeks of age, male.

History of Specific Infection. When two weeks old had snuffles and developed typical skin eruption; treated with mercurial ointment; child died when six weeks old suddenly, apparently from mother's description, of a sudden collapse. There is another child now 11 or 12 years old, who the mother says is bright, but does not get along well at school. Does not seem able to learn. Was not seen or examined.

No. 3, died at three years of age, male.

History of Specific Infection. When two weeks old developed typical snuffles and skin eruption, which was continued until these disappeared. When two and one-half years old, he had not walked at all. He was markedly mentally backward; at this time he developed periostitis; was put on a treatment at this time; child, however, failed rapidly, and died when three years of age. The family history: one child now 22 years old had eye trouble,—corneal ulcers when in school, and had to wear glasses and was backward, and did not finish even grammar school, before going to work. Second child who is now 18 years old is in the second grade of High School; she had typical specific lesions when a few weeks of age, and was treated; is now very delicate and has frequent headaches; she is under continuous treatment; mentally is backward, though not so poor but to be self-supporting.

No. 4, died when three and one-half months old, female.

History of Specific Infection. When a few weeks of age developed typical skin eruption and snuffles; treated with mercurial ointment without any improvement. The child died, apparently from malnutrition.

No. 5, died at six months of age, male.

History of Specific Infection. At the age of two months, developed skin eruption and snuffles, for which it was given mercurial ointment treatment, which continued for a month. General condition did not improve; steadily grew worse; apparently died in atrophic condition.

No. 8, died at seven weeks of age, male.

History of Specific Infection. At four weeks developed typical eruption and snuffles; treated with mercurial ointment. Child died when seven weeks old in convulsions. Mother has one other child now 10 weeks old who apparently has no signs as yet.

No. 20, died at seven weeks old, female.

History of Specific Infection. When a few weeks old she had typical snuffles and skin eruption. She was given mercurial ointment. Lesions, however, did not respond to treatment. She grew steadily worse, and died when seven weeks old from atrophy.

There are three other children in the family, one of whom is apparently normal; the other two show signs of specific infection.

No. 22, died when a year old, female.

History of Specific Infection. When two months old, developed typical snuffles and skin eruption. He was treated with mercurial ointment until these disappeared.

Child died suddenly—cause not given.

There are two other children in this family; oldest child nine years of age, who is only in the second grade at school and mentally dull. Second child six years of age also mentally backward.

No. 27, died at two years of age, male.

History of Specific Infection. When a few weeks old he had typical snuffles and skin eruption. Mother did not apply treatment. When one year and ten months old he developed jaundice which steadily increased; liver was very large; this continued until his death at two years of age.

No. 28, died at nine weeks old, male.

History of Specific Infection. When two weeks old, developed marked snuffles and typical eruption; treated with mercurial ointment. Apparently did fairly well until he developed some acute intestinal infection, which caused death.

No. 31, died when two years of age, male.

History of Specific Infection. When two months old, developed typical eruption and snuffles; was treated with mercurial ointment; was kept on treatment only for a short time until skin eruption dis-

appeared; was apparently fairly well until two years of age, when he developed what was called meningitis and died suddenly.

No. 34, died when seven months old, male.

History of Specific Infection. At three weeks of age, developed typical skin eruption and snuffles. Was treated with mercurial ointment. Condition did not improve under treatment, and he died when seven months old of apparently mal-nutrition.

No. 38, died at ten months, female.

History of Specific Infection. When three or four months old, she developed typical snuffles and skin eruption. She was treated with mercurial ointment until these disappeared. On treatment only a short time. She died when 10 months old of acute intestinal infection.

No. 39, died when thirteen months old, female.

History of Specific Infection. When three months old she had typical skin eruption and snuffles. She was treated with mercurial ointment until these disappeared. Child apparently did fairly well and died from convulsions when 13 months old.

No. 41, died at four and a half months old, female.

History of Specific Infection. When two weeks old, had marked skin eruption and snuffles; was treated with mercurial ointment. Child did not do at all well. Gradually failing and died of mal-nutrition at four and half months of age. Mother has only one other child now six years old, who apparently is normal. From her history, her infection dates subsequent to the birth of this child.

No. 42, died when five months old, male.

History of Specific Infection. When one month old, had typical skin eruption and snuffles; was treated for a short time with mercurial ointment.

Child died suddenly when five months old. Mother said of convulsions.

No. 46, died at two and half months old, male.

History of Specific Infection. Shortly after birth, developed marked snuffles and typical skin eruption; also had pseudo-paralysis, beginning in left arm when a month old. Treated with mercurial ointment, and improved somewhat.

Died of acute intestinal infection.

No. 47, died when 13 months old, male.

History of Specific Infection. When a few weeks old, had typical skin eruption and snuffles; treated internally with mercury.

Child died with acute intestinal infection when 13 months of age.

No. 49, died when seven months old, male.

History of Specific Infection. When two months old had typical skin eruption and snuffles. Treated with mercurial ointment for a long enough period for these to disappear,—a few weeks. Child developed pneumonia at seven months and died.

No. 54, died at 11 months of age, female.

History of Specific Infection. When two months of age had typical eruption and snuffles; was treated with mercurial ointment; child was kept on treatment long enough for these to disappear, and when about 11 months old child had convulsions and died. Mother gives typical history of specific trouble.

No. 61, died when one year old, female.

History of Specific Infection. When six weeks old had typical skin eruption and snuffles; was treated for a long enough time for these to disappear with mercurial ointment.

Subsequent History. Child failed slowly in general nutrition and died when about a year old. Mother since had another child, now 10 months old, who also has typical skin lesions, for which the child is being actively treated, and now at 10 months of age, child seems to be doing fairly well.

No. 63, died at six weeks of age, male.

History of Specific Infection. One or two weeks after birth had marked snuffles and typical skin eruption.

Subsequent History. Child developed cerebral symptoms at six weeks of age a few days after starting mercurial ointment treatment, and died in convulsions.

PROTOCOLS OF CASES OF CONGENITAL SYPHILIS.

19 CASES OF THE ONES APPARENTLY MENTALLY NORMAL.

NO.	AGE	SEX	SYMPTOMS	LENGTH OF TREATMENT	PRESENT CONDITION
7	3 years	Male	Snuffles and skin eruption.	Few weeks.	Physically and mentally apparently normal.
10	6½ years	Female	Snuffles, skin eruption, later headaches.	Few weeks.	Bright; normal.
18	11 years	Male	Snuffles, skin eruption. At 4, headaches, glandular enlargement.	Few weeks. Several months.	Physically normal; mentality medium.
23	7 years	Female	Snuffles, skin eruption.	Few weeks.	Physically normal, but nervous; mentally apparently normal.
25	6 years	Male	Snuffles, skin eruption; at 5 years, headaches.	Few weeks; at 5 years few weeks.	Physically normal; mentally normal.
26	15 years	Female	Snuffles, skin eruption; at 10 ulcers and keratitis.	Few weeks; at 10, short periods.	Physically normal; mentally normal.
29	4 years	Female	Snuffles, skin eruption.	2 months.	Physically and mentally normal for child of 4.
30	4 years	Female	Snuffles, skin eruption.	Few weeks.	Physically and mentally apparently normal.
32	4 years	Female	Snuffles, skin eruption.	Few weeks. Lately, off and on.	Below par physically; mentally apparently normal.
33	4 years	Female	Snuffles, skin eruption.	Off and on for 18 months.	Physically and mentally apparently normal for 4 years.
35	4 years	Male	Snuffles, skin eruption.	Few weeks.	Physically and mentally apparently normal for 4 years.
40	3 years	Female	Snuffles, skin eruption, condylomata.	Few weeks.	Physically and mentally apparently normal.
45	4 years	Male	Snuffles and skin eruption. Later sores generally.	Few weeks.	Physically and mentally apparently normal.
50	1½ years	Female	Snuffles and skin eruption.	Few weeks.	Physically slightly backward; mentally apparently normal.

51	14 months	Female	Snuffles and skin eruption.	Few weeks.	Normal for 14 months.
59	21 months	Female	Snuffles and skin eruption.	Few weeks.	Normal for 21 months.
62	5 years	Female	Snuffles and skin eruption.	Few weeks.	Apparently normal.
64	4 years	Female	Snuffles and skin eruption.	Few weeks.	Apparently normal for 4 years.
65	1½ years	Female	Snuffles and skin eruption.	8 months.	Apparently normal for 4 years.

19 CASES OF THE ONES MENTALLY BACKWARD.

NO.	AGE	SEX	SYMPTOMS	LENGTH OF TREATMENT	PRESENT CONDITION
2	13 years	Female	Snuffles, skin eruption, periostitis, keratitis.	Few weeks.	Backward; not dependent.
6	12 years	Female	Snuffles, skin eruption, keratitis, glandular enlargement.	Few weeks.	Backward; not dependent.
9	4½ years	Female	Snuffles, skin eruption, ataxia.	First few weeks. Later for 2 months.	Backward.
11	5 years	Male	Hemiplegia, and epileptiform attacks.	First for 4 months. Later at 4, "606."	Backward.
12	16 years	Male	Snuffles, skin eruption.	Few weeks.	Backward; not dependent.
13	9 years	Male	Snuffles, skin eruption. Later ataxia and cerebral symptoms.	First few weeks. Later, 2 months.	Backward, probably dependent.
14	10 years	Male	Snuffles, skin eruption.	Did not follow treatment.	Imbecile. Dependent.
16	10 years	Male	Snuffles, skin eruption.	Few weeks.	Imbecile. Dependent.
17	13 years	Male	Snuffles, skin eruption, periostitis, glandular enlargements.	First few weeks. Later, since 5½ years old, off and on.	Backward. Probably dependent.
19	16 years	Male	Snuffles, skin eruption.	Few weeks.	Imbecile. Dependent.
21	13 years	Male	Snuffles and skin eruption. At 6 years, keratitis and periostitis.	First, few weeks. Since 6 years, off and on.	Backward; subject for special institution.
24	7 years	Male	Snuffles, skin eruption.	Few weeks.	Backward.
36	4 years	Male	Snuffles, skin eruption.	Few weeks.	Backward.
37	3 years	Male	Snuffles, skin eruption.	Few weeks.	Backward, probably imbecile.
43	4½ years	Male	Snuffles, skin eruption.	1 month.	Imbecile.
44	2 years	Male	Snuffles, skin eruption.	Few weeks.	Imbecile.
48	2 years	Male	Snuffles, skin eruption.	Few weeks.	Backward.
52	2 years	Female	Skin eruption.	Few weeks.	Backward.
53	9 years	Male	Snuffles, skin eruption, periostitis, keratitis.	Few weeks.	Backward.

21 CASES OF THE ONES WHO HAVE DIED.

NO.	DIED AT AGE OF	SEX	SYMPTOMS	LENGTH OF TREATMENT	PRESENT CONDITION
1	6 weeks	Male	Snuffles, skin eruption.	Few weeks.	Died suddenly.
3	3 years	Male	First, snuffles, skin eruption. At 2½, periostitis.	Few weeks. Treated till death.	Died.
4	3½ months	Female	Snuffles, skin eruption.	Few weeks.	Died from mal-nutrition.
5	6 months	Male	Snuffles, skin eruption.	1 month.	Died from mal-nutrition.
8	7 weeks	Male	Snuffles, skin eruption.	3 weeks.	Died in convulsions.
20	7 weeks	Female	Snuffles, skin eruption.	1 month.	Died from mal-nutrition.
22	1 year	Female	Snuffles, skin eruption.	Few weeks.	Died.
27	2 years	Male	Snuffles, skin eruption; at 20 months, jaundice.	Not followed.	Died, hypertrophic cirrhosis of liver.
28	9 weeks	Male	Snuffles, skin eruption.	Few weeks.	Died from acute intestinal infection.
31	2 years	Male	Snuffles, skin eruption.	Few weeks.	Died from meningeal trouble; whether specific not known.
34	7 months	Male	Snuffles, skin eruption.	Few weeks.	Died from mal-nutrition.
38	10 months	Female	Snuffles, skin eruption.	Few weeks.	Died in convulsions.
39	13 months	Female	Snuffles, skin eruption.	Few weeks.	Died of acute infectious diarrhea.
41	4½ months	Female	Snuffles, skin eruption.	Few weeks.	Died of mal-nutrition.
42	5 months	Male	Snuffles, skin eruption.	Few weeks.	Died suddenly.
46	2½ months	Male	Snuffles, skin eruption, pseudo-paralysis of arms.	Few weeks.	Died of acute intestinal infection.
47	13 months	Male	Snuffles, skin eruption.	Few weeks.	Died of acute intestinal infection.
49	7 months	Male	Snuffles, skin eruption.	Few weeks.	Died of pneumonia.
54	11 months	Female	Snuffles, skin eruption.	Few weeks.	Died of convulsions.
61	1 year	Female	Snuffles, skin eruption.	Few weeks.	Died of mal-nutrition.
63	6 weeks	Male	Snuffles, skin eruption.	Few weeks.	Died in convulsions.

THE RESULTS.

The results of this investigation show very clearly the need of a much further and more complete study into this condition, and it is with the hope of stimulating such studies that this brief and preliminary set of cases is put forward.

They bring out the following points, many of which need much further investigation, but all of which are very striking and have an important bearing in such a study:

1. The high early death rate. This may be due partly to the instructions not being followed out, but in great measure it must be admitted that this mortality might be lessened to a considerable degree if such cases could be very much more closely followed, insisting on maternal nursing and on continuance of specific treatment, the two cardinal points in the early management of such cases.

2. The high percentage of backward children. No attempt has been made to draw any absolute percentages in such a small number of cases, but it must be clear to every reader that something should be done when, out of sixteen children of school age suffering from any congenital disease, eleven are more or less mentally affected.

3. The lack of following up the initial treatment. As history after history shows, treatment was discontinued as soon as the eruption which, in most cases, was what the mother had brought the child in for, had disappeared. The question here, of course, which might be raised is: Is the mother the one on whom the entire blame is to be put, or is this within the field of the medical service? This naturally raises a second question,—whether the responsibility for completed treatment rests on the medical service? The writer feels that too often it is really the lack of a follow-up system being provided by the hospital, which would hold and keep hold of such cases, and see that they realize the importance and understand the significance of the treatment.

4. This is, after all, a question of efficiency, and a question which must be, sooner or later, answered much more seriously than it is today in many hospitals.

Such results are certainly significant and deserve our closest attention from every point of consideration, and it is intended to follow these cases and as many more as possible over a considerably longer period, reporting on their progress from time to time.

PROGRESS IN THE TREATMENT OF THE NEUROSES.*

BY E. W. TAYLOR, M.D., BOSTON.

The disintegration of the general body of medical knowledge into its constitutent elements is unquestionably the most significant tendency of our time. This inevitable tendency is variously regarded by men of equally sound judgment and diverse experience. Dr. Abraham Jacobi of New York, in a recent address[1] sums up the opinion of those who have lived through the relatively short period from the time when all physicians were general practitioners to the time in which we are now living when physicians are more and more seeking to develop themselves in certain definite directions, whether or not they may call themselves specialists.

The terminology is certainly a matter of small consequence. We are simply facing facts which may neither be evaded nor argued into non-existence. No one would seriously maintain that it is now possible for any man, however versatile and gifted, to comprehend and make practically available all existing knowledge of the medical sciences; whereas fifty years ago, this was by no means an insurmountable ideal. It follows therefore that if the general practitioner is to be rehabilitated in his former state, it must be on a very different plane from that of his predecessor of a generation or two back. To a critical observer of the situation, it seems altogether likely that the practical results of the specialists' endeavors will be to secure a body of knowledge which will readily be used by practitioners who are quite ignorant of the processes by which such knowledge has been attained. This is already visible in many branches of practical medicine, and perhaps particularly in the increasing simplicity of therapeutic procedure through the development of specific therapy, of which the treatment of diphtheria, epidemic meningitis, and syphilis, may be taken as examples. If the researches which have established this simple and rational therapy are continued in the future, and of this there can be no doubt, we may forsee the gradual mastery of disease in many of its forms. All this will render simpler the task of the practitioner, and it is not without the bounds of possibility that he may re-emerge as the dispenser in practical form of the knowledge gained through laboratory research, as Jacobi implies in the address to which allusion has been made.

In the meantime, we are far from this goal, and there are innumerable points of contact in which the special worker and the most general practitioner should come into the closest possible relation. When other problems conceivably are solved, there will remain the great field common to practitioners of whatsoever sort which may be included under the somewhat vague term of the neuroses, or better the psychoneuroses. Although here, as elsewhere in medicine, it is particularly essential to progress that a select group of men should lead in research, it is no less important that the knowledge thus gained should be disseminated as widely and effectively as possible. Here is undoubtedly a department of medicine which the practitioner cannot evade if he would. So long

* Read before the New Hampshire State Medical Society, May 8, 1912.

as we deal with human beings, we must take into account their mental characteristics as well as their physical ills. We must consider the whole man, as admirably expressed and formulated some years ago by Dr. James J. Putnam in his Shattuck Lecture before the Massachusetts Medical Society entitled "Not the Disease only, but also the Man."[2] There are few departments of medical practice, although this fact is by no means recognized, in which the specialist and the general practitioner stand on such common ground as in the interpretation and treatment of the neuroses; and this in spite of the growing tendency toward specialism, I believe will be increasingly evident in the future. It is for this reason that I have chosen for the topic of these somewhat informal remarks "Progress in the Treatment of the Neuroses."

We are much in need of a uniform and generally accepted nomenclature of those disorders of the nervous system of which we have no explanatory anatomical basis. Although some progress is being made in this direction, a classification which meets all the needs of the situation is not likely to be forthcoming for many years, if in fact it will ever be completely possible.

In the meantime, it is well to use inclusive terms which will not too sharply limit our conceptions, of which the term psychoneurosis, or neuropsychosis, may be taken as an example. Undoubtedly, much confusion and propagation of error has arisen through the convenience of the word "neurasthenia" as applied inclusively to a great variety of so-called functional disorders, in many of which the element of fatigue can by no means be demonstrated. In a similar way, rheumatism or latterly neuritis, have too often been applied to conditions characterized by pain without further attempts at definition. The habit is unfortunately easy to form, of being satisfied with a term as indicative of an underlying condition, and to treat the condition so characterized without further consideration of its actual nature. No one will be inclined to deny that this has been peculiarly true of nervous disorders of the non-structural sort, which comprise a surprisingly large share of general medical practice. The surgeon describes the effect of certain operations on his "neurasthenic patients" but fails to define what he means by neurasthenia, thereby vitiating his conclusions. Another finds this or that treatment useful for his "nuerasthenics," using the term as a catch-all for almost any disorder short of insanity on the one side and demonstrable organic disease on the other. It is not pleasant to contemplate the amount of harm and bad practice that has been perpetrated through this easy-going method of assuming that neurasthenia and allied conditions constitute in some way an entity to be treated as it were on the basis of a specific therapy. That this is still a prevalent idea in the profession must be evident to every one who reads the general medical journals or who comes into contact with physicians in various branches of medical practice. This is due, no doubt, to the faulty and inadequate teaching of our medical schools; to the consequent general neglect of detailed information regarding the nervous system in health and disease and to the still prevalent idea among teachers in other branches and among practitioners that this particular department of medicine may be slighted without injustice to the communities they serve. As a natural result of these various influences, beginning in the preliminary education of the physician, the nervous system both on the side of its structural derangements and functional aberrations has fared badly at the hands of the profession at large. This is peculiarly unfortunate; and particularly in relation to the so-called functional disorders has undoubtedly led to an amount of irregular practice which it should have been the duty and privilege of the medical profession to forestall and prevent.

There are, however, unmistakable signs of change. Physicians are coming to recognize that stereotyped methods of treating the neuroses often fail to bring results, and that patients are going outside the profession for the relief of their peculiarly distressing symptoms. The first step in progress is the increasing realization of the fact that our responsibility does not end with the treatment of physical conditions. This has been a peculiarly hard lesson to learn. The strongly materialistic tendencies of medicine have nowhere been more in evidence than in the insistent demand that all disease or disorder of function should be regarded only from the physical standpoint and should be treated by physical means. That failing, the attitude has been that the physician has completed his task and that such patients are deviate or degenerate or so far burdened with a hopeless hereditary taint as to be beyond the power of medical science to heal. The end of this attitude is fortunately in sight. The feeling has grown haltingly, but with all the more insistence on that account, that somehow the methods have been inadequate and the point of view narrow. It will hardly be possible in the future, as it has been in the past, that men otherwise well educated in their calling will go out from the medical schools with the vaguest possible notion of the great group of vitally important conditions commonly called the neuroses. However brought about, whether forced by popular opinion or instigated by the more subtle realization of defect, the fact is patent that these disorders, constituting as they do one of the most essential branches of practice, must in the future be treated with increasing intelligence and openmindedness.

How has this change been effected? The answer to this question, stated broadly, is that the medical profession through the researches of special students of the subject have come to recognize that a large proportion of nervous dis-

orders of the functional type, not excluding many with predominant physical manifestations, are due in last analysis to disordered or perverted mental processes, or to use a technical term, are "psychogenic." Here again a physician finds peculiar difficulties who has been trained only in the study of the physical aspects of disease. He is incompetent to treat a mental state primarily, except in the crudest way by encouragement, an appeal to the will or similar superficial and inconsequential method; and yet in the type of disorder of which I am speaking, a knowledge of the mental processes of the patient is fully as essential as, for example, a knowledge of the lung in pneumonia. A physician could not fail of professional ostracism if he treated his consumptives, with no knowledge whatever of the condition of their lungs; but he is continually treating the neuroses in complete ignorance of the method of their genesis and without systematic effort to determine it—fully as grave an offence against scientific accuracy.

To revert again to the term "neurasthenia"—useful as that term may be and invaluable as Beard's keen analysis of its signs and symptoms has proved, we are still laboring under the idea that this great vague group of conditions is due to exhaustion of the nervous system in a purely physical sense.[3] Few forms of treatment have seemed superficially so rational as the so-called rest cure, identified with the name of Weir Mitchell; and few have been so universally employed, often it must be admitted to the detriment of those undergoing the treatment. This is surely no fault of the treatment as such, but simply indicates that the condition popularly known as neurasthenia cannot be regarded as an entity, demanding always the same treatment. Undoubtedly there is such a state as an exhausted nervous system, just as there is such a condition as an exhausted muscular system, but it is, on the whole, rare. Physicians, in other words, have seized upon the idea of rest for a vast variety of nervous disorders of the functional type as a simple and rational procedure, but have failed to take into consideration the associated and often causative mental state. As Dr. Richard C. Cabot has admirably put the matter, "A disease is one thing, and what the patient thinks of it is quite another," an aphorism which might well be expanded into the statement, "What the patient thinks not infrequently constitutes the disease." In the pure psychoses this is sufficiently evident, but it fails of recognition in those conditions in which the mind of the patient is apparently normal, though in reality distinctly disordered. For example, take the following commonplace experience: A patient presents himself with the following story: He is a hard working man, holding a responsible position. His obligations to his work in life and to his family are many and various. He finds that he tires easily, that his sleep is fitful, that he wakes in the morning ambitionless and with a sense of incompetency, that his appetite is failing, that his enjoyment of life is growing less, that whatever he does, whether play or work, is an effort; and more serious, that his keenness for his business is diminishing; that he is becoming depressed and irritable, and so on through the long category we all know well. With these subjective symptoms has come a sense of head pressure, pain at the back of the head, and a general disorder of digestion. This is the sort of story we are continually hearing. We assume overwork, and advise rest and change of scene. But, unfortunately, the patient is obliged to work in order to support his family, and such advice comes not only as a hardship, but almost as an impossibility. What the physician has done is to add a further element of anxiety to an already pitiable situation, with the result that the patient is now fully convinced of the seriousness of his condition; but what is of even more importance, the physician, conscientious as he may have been, has utterly failed to reach the source of the difficulty. He has wholly failed to determine the patient's attitude toward his own condition. In such a hypothetical case as that outlined above, the physician has by no means done his duty until he has found out precisely what the patient's conclusions are regarding the interpretation of his own symptoms, a perfectly simple procedure, for here frequently rests the key to the entire situation. Being a thinking person, the patient has certainly made some interpretation, and it is almost equally certain that his conclusions are wrong and decidedly to his own detriment. He is apt to reason somewhat as follows: "I am evidently not well nervously, as shown by my increasing irritability, sleeplessness, and digestive disturbances. My brain does not work so well as formerly, as shown by the fact that I am unable to transact my business satisfactorily. I forget easily, hence my memory must be failing; and if this be true, my mind cannot long hold out. And this can only mean one thing,—that ultimately I shall become insane."

Bearing this burden of false interpretation, the patient seeks his physician only too often to be told merely that he is tired out and that rest is demanded. The insistence upon a life of inactivity in such cases is often the worst possible advice. The cure lies evidently in quite another direction, which may only rationally be determined by investigating the mental processes through which the patient has arrived at his wholly false and distressing conclusions. If this be done, and with a certain amount of experience and patience, it is not difficult, it will be found in a large proportion of the cases which are commonly diagnosticated "neurasthenic," that the element of faulty self-analysis, a reasoning from false premises to necessarily false conclusions, is of the greatest possible importance in a proper estimate of the genesis of the condition. This has been demonstrated again

and again by recent methods, and may no longer be questioned. If, for example, a person interprets a sense of constriction about the head as indicative of a brain disturbance, it is a remarkably easy step to become obsessed with the idea that he is suffering from tumor, is about to lose his mental balance, or, as often seen in middle aged persons, is threatened with apoplexy. Ideas of this type, once having gained foothold in the mind, become extraordinarily real to the patient (the word imagination should certainly not be used in this connection), and in the second place, such ideas if left undisturbed become a prolific source of future trouble, manifesting themselves not infrequently by a train of physical symptoms as well. On this soil the various distressing phobias flourish which constitute so large a part of the neurotic states under consideration.

In this connection, the study of insomnia assumes a new and very practical interest. There is a widespread belief that sleep is essential to physical and mental health. Broadly speaking this is no doubt true, but the idea has assumed such an exaggerated form and taken so morbid a hold on the popular mind that the assumption is often reached that unless one sleeps the most direful results will follow. The relaxation of body and mind essential to the act of sleeping gives way to a peculiar apprehensiveness of the consequences of not sleeping, with wakefulness as its natural outcome. Insomnia in many instances is therefore merely the expression of a fear. This seems sufficiently demonstrated from the fact that a removal of this fear through explanation is often sufficient to restore capacity for sleep. The following case may make this clear, and also illustrate a method of procedure.

A man of forty-eight, a broker by profession, had suffered from insomnia on and off for fifteen years. About two years ago, he had a period when for four or five days at a time he was unable to sleep. He was told by a physician that he had a heart trouble, which alarmed him greatly. He began to take veronal, and with intermissions had continued this treatment. Two months ago he had a peculiarly severe attack of insomnia, with the insistent idea that if it continued he would lose his mind. For a time he did not even go to bed, and the only relief he obtained was from the use of veronal. When I saw him, he stated that he had not slept for three nights; his digestion was out of order; but, much to his disappointment, regulation of his diet did not relieve him. He had found that when reading a book he was not able to remember what he had read, and that his concentration in general was suffering. This was an added source of anxiety. Of late he had stayed away from business and devoted his attention to the vain effort of helping himself. He had formed the habit of walking a great deal, pondering continually on the outcome if he continued not to sleep. Finally, he again gave up going to bed, and reached such a state of distress that he dreaded even going into his bedroom. He was actually afraid to go to bed. Physical examination was not significant.

At the end of an hour's conversation, it was evident that this patient was so distracted by the fear of the consequences of not sleeping that his mind was in a turmoil of doubt, which was greatly intensified as night approached. Recognizing this fact, the method of treatment was simply to explain to the patient, who was unusually receptive, that his insomnia was due wholly to his attitude of mind, which in his ignorance of such matters he was, unaided, entirely unable to change. By explaining to him at length that he had falsely interpreted the consequences of not sleeping, his feeling of apprehension was allayed and an attitude of indifference as to whether or not he slept substituted. This idea proved salutary, and sleep followed as a natural consequence. At his next, and only subsequent, visit, something over a week later, he said that he had had no further difficulty, that he had slept every night without drugs with one exception, when he was particularly worried over another matter. The relief was immediate, and so far as I am aware, permanent.

The principle involved in this commonplace example is far-reaching, and applies in greater or less degree to all of the neuroses of the type I am now considering. Otherwise expressed, it is my firm belief that the mental factor in the causation and development of neuroses is of far more significance than the commonly attributed over-strain or over-work which has given rise to the popular but inaccurate term "nervous exhaustion."

Janet[4] and his followers have long regarded hysteria as a mental disorder, and have sought an explanation of its extraordinary phenomena in terms of mental processes rather than of physical conditions. There can be no doubt in the mind of those who have looked below the surface that whatever the future may bring forth, the swing of the pendulum is now far in the direction of a clear recognition of the importance of mental states in the evolution of the neuroses. This tendency is well summed up in the single word, "psychoanalysis," associated particularly with the name of Freud, who, whatever one may think of the details of his doctrine, has done much toward bringing recent tendencies to a definite focus. Put in plain language, the modern demand is that the doctrine of cause and effect be applied to the mind as to the body, and that an analysis of a mental state into its causative factors is as essential as the analysis of a physical condition. At the risk of repetition, I repeat that if a patient coughs and is losing weight, we as a matter of course examine his lungs and determine the presence or absence of tubercle bacilli in his sputum. If, however, a patient presents himself in a distressed nervous state, making the

apparently absurd statement, for example, as did one of my patients, that when the sun shone upon him he suddenly felt totally exhausted to such a degree that he was about to give up his work, how many of us attempt even to get at the root of his difficulty by a painstaking analysis of the mental state underlying so bizarre a statement; and yet in such an analysis lies the only possible source of relief. It would be easy to multiply examples, but the time at my disposal permits merely a broad statement of the situation, which may now be summarized by saying that the great group of neuroses under consideration are largely psychogenic in origin, and therefore may only be adequately studied, analyzed, and treated by psychological rather than by physical methods. When a knowledge of this fact and its full import has spread widely throughout the profession, we may confidently expect results now obtained only by the relatively few special students of the subject. In making this definite and somewhat dogmatic statement, I do not wish for a moment to minimize the importance of as complete a physical study as possible of neurotic patients. It is hardly necessary to say that this must in all cases be done as a matter of course. In this connection, reference should be made to the extraordinary work upon the ductless glands in relation to the genesis of certain fundamental conditions and emotions. The study of the thyroid by many observers over a long period of years, the investigations of Cushing[5] on the pituitary, and latterly, of Cannon[6] on the adrenals, are contributions, the full consequences of which may as yet be dimly foreseen but which undoubtedly will establish many facts hitherto speculative on a definite scientific foundation. However this may be, from the purely practical standpoint which we are now assuming, the fact remains that the appeal to physical causation is almost invariably insufficient, and that many of our failures in treating these difficult cases are due simply to the one-sidedness of our point of view. The effect of the mind upon the body is coming to be recognized in practical medicine as no less important than the effect of the body on the mind. Fatigue or indigestion may under certain circumstances properly be regarded as the direct results of emotional disturbance[7] as well as their possible cause.

It is naturally far beyond the scope of this paper even to attempt a discussion of the theories and speculation regarding the nature of the interaction of mind and brain, but it may at least be said that out of all the discussion has come the practically useful fact on which I am insisting and to which I continually recur: that the mental processes of our patient demand the same exact scientific investigation as do his physical ills. Granting this fact, two questions forthwith present themselves: First, how has this knowledge been brought about; and, secondly, how may its results be made practically useful to the general physician? A very brief answer to both of these queries must suffice. First, the knowledge upon which we now stand has been secured through the devoted work of a few men courageously investigating in a field generally ignored and often scorned by their confrères. The attitude of the general profession has not infrequently been one of pronounced hostility, at times no doubt justified, but more often not. The vagaries of Mesmer, the work of Braid, and the genius of Charcot, established hypnotism as at least a matter worthy of calm and judicial consideration. The profound studies of Janet in hysteria, the practical work of Dubois, the coincident work of Freud and his school in Germany, of Prince, Sidis, Putnam, Jones, and Cannon in this country, the latter working from the standpoint of physiology, the association methods of Jung, and the innumerable refinements of psychological technique have gradually overcome the prejudice, always so striking a feature of this progress, until now we may say not only that the general subject may no longer be scorned, but that it has become an essential to a liberal medical education. Societies of medical men of unquestioned standing have come into existence both in this country and abroad devoted solely to a study of the subject, and the extension of knowledge brought about through many special periodicals bears witness to the widespread interest which it is everywhere arousing. A study of fundamental emotions, fear, the instinct of self-preservation, the whole question of sex relation, is being prosecuted with the growing conviction that these matters are of the most intimate, practical importance in the interpretation and hence in the treatment of many distressing nervous disorders. There is no longer the slightest question of the scientific sincerity of the physicians engaged in this work. Difference of opinion, as might naturally be expected, is everywhere apparent,—a fortunate circumstance, since only by such controversy is real progress possible. Whether Freud in his insistence on the importance of the sexual life, or Prince in his doctrine of re-education, or Putnam in his broader philosophical conception is right, is for the present of relatively little consequence provided the profession at large, and through it, the community, is sufficiently impressed with the significance of the serious attempt now being made to demonstrate the wide applicability of the principles for which all are contending.

In the meantime, it is of interest that the study of heredity is being prosecuted in its practical relations with extraordinary vigor, as shown by the enthusiasm being shown in certain quarters in what may be called "the applied science of eugenics." This again marks a step in progress. It seems not unlikely that we may soon as a profession speak with some degree of intelligence of the rôle played by heredity as a biological fact, as contrasted with the conditions

brought about by the interplay of events after birth. It is a matter of particular significance that at a time when the greatest possible stress is being laid upon apparently fortuitous events in the life of the individual as determining his future mental health, as I have attempted to indicate, the question of the exact nature of hereditary influences should be studied on the basis of statistical data as never before. It cannot be questioned that this awakening of interest on the one hand in the mental factors occurring in the life of the individual in the production of the neuroses, and on the other in the facts of heredity as gleaned from intensive study, has already resulted in a distinctly clearer conception of the problem of the so-called functional disorders of the nervous system and of the means to meet that problem.

The second question, as to the immediate practical availability of this knowledge to the physician, is naturally one of vital importance to us all. It is not to be expected that the general practitioner will follow the intricacies of the discussion now going on; but already there are certain facts sufficiently established which may be used with advantage. First, the profession should recognize that with the definite establishment of psychotherapeutic measures, drugs should be largely eliminated. Hypnotics especially are rarely necessary and often detrimental. The effort should be, to establish the patient's confidence in himself through analysis and explanation, and to develop in him the capacity to meet his personal problem. The treatment must always be individualistic, and not by rule of thumb. The mental side must be given increasing prominence. To this end, physicians should first cultivate respect for the non-material side of their calling and then educate themselves in the established methods of psychological analysis. The reality of ideas must be placed side by side with the reality of physical conditions, and the patient treated as a thinking being rather than as a conglomerate of physical reactions merely. All this is simply to introduce rationality where something approaching chaos has hitherto existed, and to realize the simple fact that a neurosis is often merely a habit of wrong thinking. It is my firm conviction, not I confess shared by all my colleagues, that it lies within the capacity of any ordinarily gifted man with some degree of special training to accomplish definite results by the application of the principles I have tried to elucidate. To solve the more difficult riddles which many of these cases present is naturally no more possible for the general practitioner than a skilful operation for gallstones at the hands of a physician untrained in the refinements of surgery. As the ordinary neurotic patients pass through our offices, we should however certainly be able to recognize the nature of their ailments and treat them at least with the same intelligence that we do our patients who are suffering from recognized bodily disorders. You will all, I believe, admit that there is room for improvement in this regard, and the possibility of this improvement lies ready at hand, if we can but see the far-reaching significance of the modern psychotherapeutic movement. This end will be definitely attained when our medical schools not only permit but demand preliminary training of their students in psychology and allied branches—a consummation as yet by no means realized.

In conclusion I take the liberty of reading a paragraph from a paper[8] by Dr. Ernest Jones of Toronto, a keen student and forceful writer on the general subject of the neuroses.

"In no department of medicine are more divergent opinions promulgated, or more valuless papers written, than on the subject of the psycho-neuroses. The reasons for this lie partly in the great complexity and difficulty of the subject-matter itself, and partly in the fact that actual investigation of the problems has up to the present been confined to a small number of workers. One unfortunate consequence of this state of affairs is that the average practitioner, and indeed neurologist, has been led to look upon the subject as being essentially chaotic and vague, and has taken refuge in a few simple conceptions that are either quite superficial or throughout erroneous. Having had no opportunity for personally studying the subject at first hand, he is usually unaware of the fact that there exists in connection with it a large body of precise knowledge, and that the progress made here during the past twenty years has been at least as extensive and valuable as that made in any other branch of medicine. The great need at the present moment is not a fruitless discussion of intricate problems on the part of those who have never investigated them, but the awakening of the medical profession to the fact that in their education there has been an important gap which should be filled. I would strongly urge that what we need is study, and not talk; facts, and not opinions. The weighty lessons of bacteriology were assimilated by the profession only when this subject had been embodied as an integral part of the curriculum at the medical schools, and we cannot hope that the no less weighty lessons of clinical psychology will be assimilated until this likewise has become an integral part of the medical curriculum. Few of those in a position to judge would admit that the study of clinical psychology is less complex, less difficult, or less significant, both for our patients and for society at large, than is that of bacteriology."

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[8] "What I want you to continue is to admire the specialist, by all means; what I want you to learn is to revere and adore the general practitioner. There are a few left of the species called family physician. Mind what I say: In twenty-five years he will recover the place of honor which was his fifty years ago. It will be he who alongside and on account of his other work will again build characters and souls, which some of you have said is the only office left for the physician. But I say to you that that theory and that demand are realized only by preparing characters and souls on the foundation of healthy bodies and sound limbs. He will then be a doctor that will not mount on a bank, as was customary for mountebanks in dark centuries; but he will again be the general adviser, having learned from the laboratory men

and the specialists, who are the modern handmaids of practical medicine; knowing the history of his trusting friends and taking an interest in their wholeness and wholesomeness,—the chum of the old people, the intimate of confiding girlhood, and the uncle and oracle of the kids." Jacobi: "Significance of the General Practitioner." Boston Med. and Surg. Jour., 1912, clxvi, 439.

[2] Putnam: Proc. Mass. Med. Society, 1899; Boston Med. and Surg. Jour., 1899, cxli, 53.

[3] Dr. P. C. Knapp has recently presented the arguments for this general viewpoint. "The Rehabilitation of Neurasthenia." Boston Med. and Surg. Jour., 1910, clxii, 269.

[4] A good resumé will be found in Janet: Major Symptoms of Hysteria. The Macmillan Co., 1909.

[5] Cushing: "The Hypophysis Cerebri." Jour. Amer. Med. Asso., 1909, liii, 249; also, Proc. Amer. Neurolog. Asso., 1911, p. 202.

[6] Cannon: Boston Med. and Surg. Jour., 1912, clxvi, 563; also with D. de la Paz: "Emotional Stimulation of Adrenal Secretion." Amer. Jour. of Physiology, April 1, 1911.

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[8] Jones: "A Modern Conception of the Psychoneuroses." Interstate Med. Jour., 1910, xvii, no. 8.

TUBERCULOSIS IN THE AGED AND THE DIAGNOSTIC VALUE OF INCREASED WHISPER IN THE INTERSCAPULAR SPACE.

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So great is the death toll from tuberculosis during the early years of life that we are apt to think of it only as a disease of young adults. And this is but natural since nearly one-third of those who die are between 15 and 40 years of age.

These figures, however, do not give us any idea of the relative importance of tuberculosis as a cause of death at any one period. That can only be determined when estimations are based on the number living at that particular age.

Thus we find that though the total deaths from tuberculosis between 44 and 64 years of age are only one-half what they are between 24 and 44, yet when estimated on the basis of 1,000 living at those two decades, the percentage is practically the same. And it is twice as high for those of 65 as for those between 15 and 20.

This is a fact of the greatest importance, the full significance of which is not generally appreciated. Pulmonary tuberculosis in the elderly, because of its chronicity and periods of arrest when symptoms are more or less in abeyance, is diagnosed less frequently perhaps than at any other time of life. This is in part due to the fact that chronic bronchitis and emphysema are so common in the elderly, and also because the clinical picture differs considerably from that which we are accustomed to see in early life. In elderly people cough is the chief complaint. The other symptoms are frequently slight or lacking altogether. In looking over my private cases for the past two years, I find that I have examined sixteen patients of 60 or over, who consulted me because of cough. This was due to the following causes: inhalation of dust (tracheitis) 1; chronic bronchitis (with or without emphysema) 5; nephritis and myocarditis, 1; possible tuberculosis, 2; tuberculosis, 7. The recital of several case histories will best illustrate certain features of the disease that characterize the latter decades.

Case 1. Mary S. Aged 60. A brother died of tuberculosis 40 years ago. The patient had good health up to the time of her marriage at the age of 20. The second year after her marriage she had a hard cough, which the neighbors diagnosed as consumption. She has worked hard much of her life, though frail, and each winter for the past four or five years has had a cough which has been diagnosed a number of times by her physician as grippe. The past winter the "grippe" was more severe and persistent and for the past few months the patient has been somewhat hoarse and has lost weight and strength. Examinations showed an old fibroid condition at the right apex with infiltration throughout the whole of the left lung and a cavity below the apex. Patient also had tuberculosis of the larynx and many tubercle bacillus in the sputum.

Case 2. Amelia H. Aged 64. Father died at 65 of tuberculosis, 41 years ago. Well and strong as a girl; thirty-two years ago while pregnant developed a cough. This continued after confinement, and her strength was slowly regained. At that time she had several hemorrhages. Following the next confinement, three years later, the patient was very much run down with a cough, night sweats and hemorrhages, and it was six months before she regained her health. Some of these hemorrhages came on while sleeping, others after a hard attack of coughing. Her cough is frequently so severe as to cause gagging. She has had a number of attacks of left sided pleurisy. Her health was good for a considerable period of time prior to three years ago, when she developed a severe illness diagnosed "typho-pneumonia." She was ill at this time for three months with a severe cough and hemorrhages. At the suggestion of a lady friend she slept out of doors for a number of months with great benefit, and this past year has been unusually well until two weeks ago, when she began to cough and expectorate bright blood and have a slight afternoon temperature.

There was very slight retraction of the right apex and dullness to the right of the fourth and fifth dorsal vertebra, with small moist rales at the right apex on coughing both in front and behind, and a few over the right lower lobe and at the left apex posteriorly. The whispered voice was heard over the vertebral column as low as the 8th dorsal and also to the right and left of the vertebral column from the fourth to the sixth dorsal vertebra. Two weeks later the right apex showed the same signs and a wet leather rub had developed over the right lower lobe. No tubercle bacilli were found in either of two specimens consisting chiefly of blood.

In both these cases there was an exposure to tuberculosis over 40 years before. It is noteworthy that in one case the disease first manifested itself 32 years ago, and in the other the first symptoms appeared 38 years before. Case 2 is living and in excellent condition today, thanks to a lay friend who suggested the out-of-door life. Case 1 is dead because her physician either failed to make the diagnosis, or lacked the moral courage to tell the truth. And there is no more despicable example of moral cowardice than the physician who shrinks from inflicting the momentary pain the truth would cause, preferring rather to let his patient drift along to

an untimely death or chronic invalidism with its sufferings and lost illusions.

Our conception of the duration of tuberculosis would be materially changed did we devote more time to obtaining our histories. The mere fact that a cough has been present for a number of years is too often taken as sufficient proof of its non-tubercular character.

CASE 3. MARGARET N. Aged 61. Was delicate to her 45th year, every spring running down with "malaria." The past two winters she has had a severe cough which caused gagging. Two months ago she developed a pleurisy of the left lung which has continued, and for about six weeks has had a cough of increasing severity, often causing gagging. She has lost weight, had night sweats, complains of weakness, loss of appetite, increasing dyspnœa, and more recently, severe pain over the lower part of the sternum. The patient was extremely ill and suffered much from dyspnœa. The chief signs were those of a resolving pneumonia over the left lower lobe. Slightly prolonged expiration over right apex posteriorly was also noted. In addition, the whispered voice was present over the upper four dorsal vertebra. The patient died in 48 hours. At the post-mortem an extensive pericarditis was found, the whole of the pericardium being adherent to the heart. A caseous area was present in the left lower lobe. A few tubercles were present on the viceral pleura and a partly caseous gland about one 1½ inches in diameter was found at the junction of the right bronchus and trachea.

Apart from a questionable infection dating back to childhood, the chief interest in this case centers in the enlarged bronchial gland, whose presence was suspected because of the whispered voice heard over the upper dorsal vertebra. This sign, first called attention to by D'Espine,[1] as being indicative of enlarged bronchial glands, has not received the attention it deserves. It is elicited as follows: The stethoscope is placed over the vertebral spines, and the patient requested to whisper "three-thirty-three." In children the tracheal quality normally ceases at the seventh cervicle. Occasionally in an apparently normal adult the tracheal quality, though of diminished intensity, persists over the upper three or four dorsal spines. The sign is said to be positive when the final "e" of the last word, "three," persists for an appreciable time after phonation ceases.

The diganostic value of this sign I have considered elsewhere.[2] In both children and adults, but especially in the latter, its significance is considerably increased when the whispered bronchophony is also heard at one or both sides of the vertebrae and its import is greater when heard down to, or below, the level of the fifth dorsal vertebral. In the adult when it is only heard over the upper three or four thoracic spines it is of questionable significance. I have had numerous radiographic confirmations of its value, and just recently a case came to autopsy whose only constant sign for several weeks had been increased whispered voice in the interscapular space. The tracheal and bronchial glands were found to be very much enlarged. Several patients with chronic bronchitis and emphysema have been studied and in no instance was there an increase of the whispered voice. Paravertebral dullness from bronchial glands, often demonstrated in children, is more difficult to elicitate in adults because of muscular development but it can frequently be detected in those of spare frame if very light percussion be employed. The demonstration of enlarged bronchial glands does not prove their tuberculous nature, though such is usually the case, nor can one affirm with absolute positiveness, even when they are tuberculous, that they are causing the symptoms complained of as good health is compatible with bronchial adenitis if the disease is in an inactive state. Unfortunately we are forced many times in medicine to deal with probabilities rather than certainties, and so in an adult with the history of "running down" associated with a persistent cough, the presence of marked whispered bronchophony over the mid thoracic vertebral, and to one or both sides thereof, greatly increases the probability of tuberculosis if syphilis and a neoplasm can be excluded.

CASE 4. ANNIE H. Aged 65. Consulted me because of chronic cough and attacks of asthma. She was a typical asthmatic who wheezed markedly while her history was being taken. The physical signs were those of emphysema and chronic bronchitis, except that the rales were somewhat more numerous and moist at the right apex, where a slight amount of dullness was detected. There was marked increase of whispered voice in the interscapular region and especially over the vertebral column. Numerous tubercle bacilli were found in the sputum.

It is notoriously hard many times to detect a tuberculosis lesion of the lungs when emphysema or asthma co-exists. The x-ray is of great value here but unfortunately is available to only a few. Asthma is sometimes due to enlarged bronchial glands, and we should consider the possibility of their presence in those patients who have a great deal of dyspnœa without pulmonary, cardiac, or renal lesion.

CASE 5. An old gentleman, over 60 years of age, had a severe cough, and was extremely emaciated, so much so that examination of the lungs was difficult; no definite signs of disease could be detected. No attempt was made, unfortunately, to a elicit a whispered vertebral bronchophony. Within a short time after first coming under observation, he had a chill and fever every other day, very typical of malaria, and that diagnosis in fact had been made by another physician. No plasmodia were detected in the blood and his leucocytes were 13,000. He subsequently devloped an effusion of the left pleural cavity and a 1000 cc. of straw colored was withdrawn; sp. gr. 1020; coagulum slight; many small mononuclear cells, no polynuclears seen. The high

[1] D'Espine: Bull. Acad. de Med. de Paris, 1907, vol. lvii, p. 167.
[2] Stoll, H. F.: Amer. Jour. Med. Science, 1911, vol. cxli. p. 83; also, Amer. Jour. Diseases of Children (not yet published).

gravity and the type of the cells made the diagnosis of tuberculous pleuritis probable.

At the autopsy the apices were adherent, and were moderately infiltrated. The left parietal pleura was studded with tubercles, the bronchial glands much enlarged, and a large mass of glands was situated near the pylorus.

In several of these cases mention is made of the fact that the cough was severe enough to cause gagging. In a series of 169 cases I found that cough followed by gagging occurs twice as often with tuberculosis as with all other diseases combined—pertuesis excepted. It seems to be especially common in patients presenting signs of bronchial gland enlargement.

When an individual has enough resistance to fight a drawn battle with the tubercle bacillus in his early life, the truce may be prolonged many years with only an occasional skirmish to indicate that a complete victory has not been won; but never was a skirmish frought with more grave peril to non-combatants, for it is in these flare-ups when cough recurs that tubercle bacilli are scattered broadcast, often with dire results. Case two contracted the disease from her father, aged 65, and she probably infected her daughter who died with tuberculosis five years ago. Case five has a son who has had hemorrhages, and his daughter-in-law with whom he lived when I saw him, had an active pulmonary lesion. The husband of case one had moist rales above his right clavicle, though no symptoms, and a grown son and daughter not examined, are very delicate in appearance. Not infrequently it is very difficult to convince the patient that he has tuberculosis, and must exercise great care in the disposal of his sputum. For this reason it is hazardous for children to be in intimate association with them.

In conclusion: 1. Pulmonary tuberculosis is not an uncommon disease in persons past 60 years of age. Laënnaconee encountered it in a person aged 99.

II. It is more prevalent than the mortality suggests as an acute pneumonia is often the ultimate cause of death.

III. In persons in the latter decade of life the disease is chiefly characterized by its extreme chronicity and by periods of relatively good health.

IV. Many people contract tuberculosis each year from the intimate association with some elderly member of the household who has had a "stomach cough" or "catarrh" for "as long as he can remember."

V. The examination of the sputum of elderly people for tubercle bacilli is a much neglected procedure.

VI. The recognition of the pulmonary lesion is often difficult as the typical physical signs are frequently marked by some other condition, notably asthma or emphysema.

VII. In these cases the key to the diagnosis will often be found in the interscapular space. The detection of bronchial gland enlargement in adults speaks for tuberculosis rather than chronic bronchitis or emphysema.

Reports of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS

TWENTY-SEVENTH ANNUAL MEETING, HELD AT ATLANTIC CITY, N. J., MAY 14–15, 1912.

First Day: Tuesday, May 14.

PRESIDENT'S ADDRESS.

DR. J. GEORGE ADAMI, Montreal: As a step in advance I would suggest that our Association might take the initiative in a plan to have the Government provide a building in Washington in which various national and international societies might hold their meetings and in which their archives might be safely kept. The Association might also provide a medal which could be bestowed as occasion arises upon those who in the opinion of our body have made some advance of the first order in medicine. Also, for the same object, an annual lectureship could be founded as a means of honoring those who make notable advances in our science. It is my sad duty to recite the loss from our ranks of John H. Musser, who has died since our last meeting. A keen student, enthusiastic clinician, a cheery friend, beloved alike by his patients and professional brethren, we mourn his untimely death.

A CLINICAL STUDY OF THE EFFECTS OF SLEEP AND REST ON BLOOD PRESSURE.

DRS. HARLOW BROOKS AND JOHN CARROLL, New York: Numerous physiological researches on both man and the lower animals have shown that there is a marked fall of blood pressure during sleep. In our experiments we have found that the night pressure, taken in groups of night sleepers, was almost invariably lower than the day pressure in the same individual, but that, conversely, in night workers and day sleepers the finding was reversed. The pressure was found to vary from 6 2-3 mm. to 44.8 mm. lower during sleeping than during waking hours, being slightest in those whose usual pressure was lowest. The maximum fall took place about two hours after sleep began. Attempts to secure even a temporarily lower twenty-four hour pressure by prolonging or deepening the sleep were apparently without avail; nor was the degree or persistence of the drop increased by artificial means, as, by large dosage of bromide or chloral. It may be said that attempts at lowering blood pressure are perhaps as harmful as they are futile.

DISCUSSION.

DR. THEODORE C. JANEWAY, New York: Fall in systolic blood pressure is not at all synonymous with fall in the mean blood pressure. The excessive fall in the high pressure cases obtained during sleep I think about corresponds to the fall in mean pressure and is largely due to the diminished size of the pulse wave at the periphery during the sleep. While Dr. Brooks does not feel that he has seen

marked effects from rest, I feel quite sure that I could produce a number of charts to show the surprising effects from simple rest. The element of mental rest is, I think, rather important in the sleep question.

DR. JOSEPH MILLER, Chicago: It seems to me the question of mental rest is quite as important as the question of sleep. We must bear in mind that individuals with high blood pressure show extreme variations from day to day, and, if the patient's pressure is taken over months, perhaps daily, or two or three times a week, we are surprised to find without any apparent cause, that such an individual may show variations of pressure of 40, 60 and sometimes 100. I am under the impression that high pressure may at times be traced to some worry or something which we are not able to learn from the patient.

DR. W. S. THAYER, Baltimore: I also have seen striking reduction of the blood pressure in association with simple and continued rest in bed. Several years ago a man consulted a colleague because of severe headache. There were evidences of chronic nephritis with a blood pressure of about 220 mm. Under vigorous treatment with nitrites the patient became anuric and comatose. Return of the urinary secretion and recovery from the uræmia occurred in association with a rise in the blood pressure to a point between 190 and 200.

DR. S. SOLIS-COHEN, Philadelphia: In the vast majority of cases carefully studied high blood pressure, under such hospital conditions as we have in Philadelphia, is not materially affected by prolonged rest in bed. We have a group of such cases under observation at the present time in which that fact has been borne in upon me. Occasionally we find one patient who shows some marked defect, but usually the decline is small.

DR. LEWIS A. CONNOR, New York: I shall have to endorse very emphatically the statement of Dr. Janeway and Dr. Thayer. One of the most important clinical effects that we see is the beneficial effect in cases of chronic hypertension of rest in bed.

DR. HARLOW BROOKS, New York: I feel that rest, or sleep, does produce in hypertension cases a lowering of blood pressure. I have taken some of these cases which showed improvement on rest in bed, put them out of doors and about their ordinary avocation and the same fall takes place. I do not believe it is a question of physical rest but a question of mental rest.

OBSERVATIONS ON THE EFFECT OF VARIOUS FORMS OF RESPIRATION.

DR. D. L. EDSALL, St. Louis: A slow, deep breathing that is not labored may be more efficient and economical than the other forms of breathing. In studies made last winter with Benedict's respiration apparatus my friends and I assumed various types of breathing often seen clinically. In contrasting the very superficial, rapid form of breathing that one frequently sees in bad cardiac cases, pneumonia and other conditions of that kind, with the very slow, but entirely unlabored, form of breathing, we always had a feeling in our subjects and ourselves, or observing other people, that less had been accomplished by the very superficial type of breathing than by the very deep or normal type. We found by the record that ventilation was lowest with this type. Ventilation was always very much greater with the superficial form. When there is a struggling in respiration the tendency is to increase the filling of the chest constantly and keep at a constant condition of partial inspiration. Thus morphia reduces effort but it makes the respiration more efficient for respiration accomplishes its function better by quieting the irritability of the respiratory centres.

THE STUDY OF RESPIRED AIR IN A CASE OF CYANOSIS WITHOUT DYSPNŒA.

DR. C. F. HOOVER, Cleveland: The patient is a man fifty years old who has chronic bronchitis and emphysema with moderate myocardial disease. There is pronounced cyanosis without dyspnœa. The cyanosis is not dependent on any impairment of the mass movement of blood. The minute volume of respired air is eight litres per minute and poor in carbon dioxide, but relatively rich in oxygen. The alveolar air is rich in carbon dioxide and relatively poor in oxygen. Further experiments show that in spite of an abundant tidal air, the ventilation of the pulmonary infundibulæ is impaired.

ORGANIC MATTER IN THE EXPIRED BREATH, AND ITS SIGNIFICANCE.

DR. M. J. ROSENAU, Boston: We took condensed moisture from expired breath, taking care to filter the inspired breath so as to eliminate all protein matter of every kind. This clear watery fluid was injected into guinea pigs and produced no more inconvenience to guinea pigs than so much sterile water would do. After letting the guinea pigs rest a few weeks and then injecting a second time with normal human blood serum part of them reacted definitely to anaphylaxis. There is a substance in the condensed moisture from the expired breath capable of sensitizing guinea pigs so that they will react to a second injection of normal human serum. In accordance with the usual interpretation this means that this organic matter is protein and it is specific and is doubtless the same as the albuminous matter in the blood. In other experiments I exposed a number of guinea pigs in a room with dogs so that the expired protein matter in the breath of dogs would be breathed in by the guinea pigs. Testing these guinea pigs with serum, we found that some of them responded. That may give us a cue for the way in which individuals sometimes become sensitized to horse serum. We know that almost all these unfortunate cases have severe symptoms after the first injection of horse serum, but we have never known how they became sensitized.

A COMPARISON OF PHYSICAL SIGNS AND X-RAY PICTURES OF THE CHEST IN EARLY STAGES OF TUBERCULOSIS.

DR. HENRY SEWALL AND DR. S. B. CHILDS, Denver: With our present ability to produce and interpret x-ray pictures, it must be admitted that a judgment founded on clinical history combined with physical signs may lead to a strong suspicion of tubercular infection long before any signs of actual tissue changes, except those involving the bronchial glands, appear on the x-ray negative. Nevertheless we believe that a skiagram of the chest, preferably repeated at not infrequent intervals, is essential to the proper understanding of a patient's condition. Skiagraphic study of the chest resolves itself into two natural divisions; one pertains to the hilus

regions, concerning especially the bronchial glands, with their associated peripheral lymphatic nodes, and the other includes the parenchyma of the lungs itself. Extreme pathologic changes in the glands may be recognized with great facility but alterations of moderate grade need careful judgment in their interpretation. We agree in the view that in the x-ray negative of the normal chest the opaque arborisations of the "bronchial tree" are almost wholly composed of shadows cast by blood vessels. In non-infected subjects the bronchial tree has a typical symmetry and regularity of distribution. It is very suggestive of the shadow of a leafless tree cast by the sun on an asphalt pavement. In practically all our cases of unproved but suspected tuberculosis the skiagraphic negatives exhibited more or less extensive areas of pulmonary congestion, denoted by thicker branches and denser arborisations of the "bronchial tree." We venture the opinion that in tuberculosis of the lungs the earliest pathognomonic skiagraphic sign is the representation of comparatively isolated areas of vascular congestion which increase independently of their connections with the central root.

DISCUSSION.

DR. HENRY KOPLIK, New York: In connection with some recent work on tuberculosis I had some x-rays taken of children who had evident tuberculosis, such cases as acute miliary resulting in tuberculous meningitis and death, with the object of seeing whether we could detect glands and infiltration at the root of the lung. Although we did get some pictures which suggested that, I do not think we are in a position to say that we can definitely mark out tuberculous glands at the root of the lung.

DR. ISAAC ADLER, New York: We have been making, with the fluoroscope, routine examinations of every patient that comes to the office. Without exception these shadows which Dr. Sewall calls "vascular shadows" in the lungs of every person young or old are bronchial glands; these glands are as a rule impermeable to the x-rays. That they are not connected with the large blood vessels is certain, it seems to me, from their position and certain also from the fact that no one has observed any pulsation there. In early cases of tuberculosis these shadows are usually increased on one side or the other or both and after some experience and practice it is not difficult to distinguish between the normal hyaline shadow and abnormal hyaline shadow.

To be continued next week

Book Reviews.

Diseases of the Skin and the Eruptive Fevers. By JAY FRANK SCHAMBERG, M.D., Professor of Dermatology and Infectious Eruptive Diseases in the Philadelphia Polyclinic and College for Graduates in Medicine. Second edition, revised. Octavo of 573 pages, 235 illustrations. Cloth, $3.00 net. Philadelphia and London: W. B. Saunders Company. 1911.

In this second edition which is now offered to the public there has been an extensive revision and a considerable addition of new subjects, such as Pellagra, Sporotrichosis, Refrigeration, etc. The article on Syphilis has been completely rewritten to present the new aspects offered by the Erhlich treatment any by the Wassermann reaction. The main value of the book lies, as before, in the valuable chapters on the Exanthemata, which embody much of the writer's own exceptional experience, especially in differential diagnosis.

Diseases of the Nose and Throat, Comprising Affections of the Trachea and Œsophagus. A Text-book for Students and Practitioners. By ST. CLAIR THOMSON, M.D., F.R.C.P. (London); F. R. C. S. (England); Physician for Diseases of the Throat and Professor of Laryngology in King's College Hospital, London, etc., etc. With 18 plates and 294 figures in the text. New York: D. Appleton and Company. 1912.

This is a new text-book of eight hundred pages, by one of the best known English laryngologists. In the preface the author tells us that it is based upon personal experience, that it is intended for a guide for the senior student and a book of reference for the graduate, and that special stress has been laid on clinical and pathological bearings and on the natural methods of defense and repair. No attempt is made to go deeply into anatomy or physiology, but all that could be reasonably expected to appear in a book of this size is included. For its size and purpose it is excellent, perhaps as good a text-book as there is. The arrangement of subjects is good, and the system of references, while not pretending to be complete, is thorough. It is always interesting in a new text-book to find its author's opinion on various subjects in which the prevailing views of etiology or treatment are changing or speculative. Here, for instance, the author has fully arrived at the view that so called "colds" are infectious diseases. But, on the other hand, he seems to class the hay fever group of disturbances as diseases of the nervous system, and has little to say about anaphylaxis. It is interesting that a book written in London has so little about vaccine therapy. In a few lines he quotes Allen as saying that if you can find the organism of a cold you may probably be able to cure it or give immunity to future attacks. In sinus suppuration the author has found it of no value. He discards all intranasal surgery of the frontal and much of the ethmoid. Tonsillectomy with the guillotine is recommended, and is generally successful in removing the capsule complete. Enucleation, requiring more time, is objectionable because the anæsthetic is chloroform. Chapters on the trachea and œsophagus are included, as they should be in a book on the throat. The illustrations are clear and serve their purpose well. As a text-book it is entirely reliable and can be safely recommended to the student or practitioner.

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VITAL STATISTICS OF GLASGOW AND BOSTON.

In the study of vital statistics, it is often instructive to compare the figures of two large and similarly situated communities, not only for the sake of points of resemblance, but for differences as well. Of the various cities with which Boston may be thus profitably contrasted, one of the most appropriate is Glasgow, the real commercial capital of Scotland. Glasgow, it is true, has for some years enjoyed the distinction of being supposedly the best governed city in the world. In the matter of size, however, it is quite closely comparable with Boston.

In 1910 the population of Boston was 673,745, and in 1911 that of Glasgow was 748,496. Each city, moreover, is in the centre of an unattached, but thickly settled metropolitan district of great relative importance. In the Scotch city this population is much more stable than in our own, and is growing at a much slower rate. This growth in Boston, however, is due largely to immigration, since the birth-rate of Glasgow, though falling steadily, is still higher than that of Boston. In Glasgow the chief movement of the population is in the desirable direction of decentralization, the suburbs growing in population at the expense of the city.

A very interesting and significant phenomenon in the vital statistics of Glasgow is emphasized in the recently published report on the Scottish census of 1911, by Dr. A. K. Chalmers, the Glasgow medical officer of health. Although the birth-rate in Glasgow is declining, the death-rate is declining more rapidly, so that there is an actual gain in the net excess of births over deaths. In the decade from 1861 to '71 this excess in Glasgow was 46,522, equivalent to 11.8% of the original population. In the decade from 1901 to '11 the excess was 91,202, equivalent to 12% of the original population. Though the excess of women over men has increased in the whole United Kingdom, it has fallen in Glasgow from a ratio of 113 to 100 in 1861 until it was only 106 to 100 in 1911.

Another element of difference between Glasgow and Boston is caused by the fact that the population of the former city is essentially homogeneous ethnically, whereas that of the latter is a composite of several widely diverse races. A study of the special problems thus introduced into our community was made by Dr. William H. Davis, vital statistician of the Boston Board of Health, in a paper which he presented before the meeting of the American Academy of Medicine at Atlantic City in June, 1912. In spite of generally good hygienic conditions the death-rate of Boston remains relatively high. This is partly on account of non-residents coming with fatal diseases for treatment in Boston hospitals, and partly due to the relatively high mortality among certain of the race constituents of Boston's population.

"According to the 1900 census, 98% of Boston's population was white, 30% having mothers born in the United States, 31% having mothers born in Ireland, 13% in Canada and 23% born in other countries. A scrutiny of the figures for the year shows that with children under five years of age, the Italian mothers had for males a mortality rate of 108 per thousand and for females a rate of 79, while with mothers born in Germany the corresponding rates were only 37 and 34. Taking the age-period 30 to 35 years, the death rates for those having mothers born in Ireland were 14 per thousand for males and 12 per thousand for females, a rate for males 7 times that of the Russians, 3½ times that of the Italians or Scandinavians, and more than twice that of English, Scotch or natives. The rate for females was twice that of the Scandinavians, Scotch, Italians or Russians and 3 times that of the natives."

"If the rates of those having mothers born in the United States be taken as a standard and the rates be applied to those having mothers born in Ireland, a theoretical number of deaths will be obtained. It is thus found that instead of nearly 4000 deaths among those whose mothers were born in Ireland, there would have been but 2400. The difference between these numbers represents the number of excess deaths and measures the influence of the Irish population in raising Boston's rate in 1900. Using the same standard rates, the general death rate of the city would have been 14.65 instead of 19.40, and the excess Irish deaths raised Boston's rate 2.79 per thousand inhabitants."

These figures would bear out the general im-

pression of those familiar with Boston clinics of the relatively high morbidity, particularly from tuberculosis, of the Irish and Italians in our city. These conditions, fortunately, seem to have shown some inprovement even in the decade since 1900.

"Since that time immigration to the United States has continued unabated, 545,000 landing in Boston alone, and more than 80,000 of these from Ireland, so that it seems probable that this division of the people in 1910 still maintained its 31% of the city's population. If such be the case a marked improvement is seen in the Irish influence upon the general mortality rate in 1910, for in 1900 36.5% of all deaths were of those having mothers born in Ireland as against 32.8% in 1910. The comparison in pulmonary tuberculosis shows in Boston a decrease between 1900 and 1910 of 20%, and among the Irish the decrease of 25%, a most excellent showing, although the figures of deaths indicate them still to be unduly handicapped by this disease."

Doubtless the factors involved in these important varying social susceptibilities observed in the recently immigrant population of Boston are various. In general, however, they probably represent the usual phenomena observed in the transplantation of races to widely differing environment. Our Irish and Italian immigrants are largely pastoral and accustomed to climates varying considerably from ours. The British, German, and Hebraic immigrants, on the other hand, come already adapted to city life, while the Russians and Scandinavians are habituated to a similar climate. Though perhaps hardly a melting-pot, our city has thus to considerable extent become a field for the competitive and selective breeding out of half a dozen widely diverse races, and the results of this process have affected our vital statistics in ways to which Glasgow with its relatively stable and adapted population has not been subject.

THE ANTELOPE AND TRYPANOSOMIASIS.

Last year missionaries working in Central Africa expressed their belief to the British Secretary for the Colonies that the tsetse fly feeds on and is being maintained by wild game; that the Government was incurring grave risks in its policy of preserving game; and they urged the removal of restrictions on hunting in Nyassaland. The Secretary replied that the relation of the tsetse fly to game was still obscure; that scientific commissions were determining this point, and that action should be reserved pending their findings. Since then Drs. Kinghorne and Yorke of the British South African Commission, working in Northern Rhodesia, have shown,—as have also other investigators,—that besides the *Glossina palpalis* the *Glossina morsitans* transmits trypanosomes; and that wild game (antelopes and pigs certainly) are naturally infected. Moreover, that cattle and other domestic animals subject to the bite of *Glossina morsitans* may harbor human trypanosomes without detriment to their own health.

If these findings are substantiated, the problem of sleeping-sickness prevention is greatly complicated. It were out of the question to attempt to destroy all, or the greater part of, the wild animals that may be infected, as has been advised, because the tsetse fly, then unable to feast upon the blood of those creatures, would all the more attack man and the animals he domesticates.

Important testimony corroborative of the conclusions of Kinglake and Yorke as to the relation of antelopes to trypanosomiasis is furnished by Duke.[1] The latter believes the suspicion that either the antelope or reptiles frequenting Chagwa Lake are reservoirs for the trypansome, "becomes increasingly probable the longer the wild flies remain infective." Antelopes and also monkeys have shown their susceptibility and have after twelve months yielded infective material. The suggestion that the time-tables of the buck and tsetse fly (which is infective by night) preclude their meeting is negatived by the antelopes' having been seen in the fly grounds as late as eleven in the morning, by which time the fly is very active; nor is the antelope's long hair a sufficient protection against the fly.

The problem would then seem to be narrowed down to the extermination of those species of the tsetse fly which transmit the trypanosomes. It is very easy to put this problem on paper; to solve it is a considerable undertaking. The situation, indeed, invites the reflection that the white man's eagerness to assume the burden of regenerating his brother has not been an entirely salutary proceeding for all concerned. The sleeping sickness seems originally to have been endemic in a small area of fifteen miles north and as many south of the equator near the West African Coast; thence it seems to have spread under the advance of Caucasian civilization, until many African regions from the

[1] Duke, H. L., Antelopes and their Relation to Trypanosomiasis. Proceedings Royal Society, Biological Sciences, Series B, Vol. 85, No. B, p. 577.

Sudan nearly to the Southern Cape, and from the Western Congo to German East Africa, have become infected. Duke instances a slight but suggestive detail of the problem: serious efforts have been made to prevent the occupation by the natives of certain infected districts; care has been taken in the manipulation of rolling stock through such territory; yet at the risk of punishment some of the natives do surreptitiously visit the forbidden places, nor can they be absolutely eliminated as the means of transmitting trypanosomiasis. Still no one is daunted by the problem. Under the guidance of scientific medicine difficulty after difficulty has been vanquished; and eventually every factor in the trypanosomiasis situation will be successfully met.

THE *SUCCESS* AND THE *CONSTITUTION*.

An unusual opportunity for interesting observation and reflection is afforded by a visit to the British convict ship *Success*, now on exhibition in Boston. This vessel, the oldest afloat in the world, was launched in 1790. Originally intended for the East Indian merchant trade, she was early converted into a prison ship for the transportation of criminals from England to the penal colony at Botany Bay in Australia, which has afforded the modern world one of its most striking examples of social evolution, in the development, by the self-imposed compulsive restraints of civilization, of a segregated community of unfit into a prosperous and enlightened commonwealth.

Apart from the instruments of punishment and torture exhibited on deck, perhaps the most interesting thing to a doctor aboard the *Success* is the dispensary, which is but little better than the prison cells among which it is placed in the hold. One shudders almost as much at the life of the ship's physician as at that of the convicts. That men could have lived at all under such conditions, and under the physical brutalities to which they were subjected, is eloquent evidence of the inherent toughness and vitality of the human mechanism. One cannot help wondering how the doctor treated the varied forms of trauma that must have come before his attention. All surgery in those days was crude enough, though often mercifully swift, but the circumstances of its practise on such a ship must have made it almost barbaric.

The presence of the *Success* in Boston has given additional interest to the recent centennial anniversary of the famous battle on Aug. 19 between the *Guerrière* and the *Constitution*. The latter vessel, the second oldest afloat, now lies a dismasted hulk, hardly more than a stone's throw across the harbor from the *Success*. The *Constitution*, in her fight with the *Guerrière* a century ago, was commanded by Captain Isaac Hull; and it is a further singular coincidence that his grandnephew, Dr. Isaac Hull Platt, whose obituary notice is published in another column of this issue of the JOURNAL, should have died within a week of the centennial. It is unfortunate that no record appears to have been preserved of the medical conditions aboard the *Constitution* after the battle, though it is known that the American loss in killed and wounded was relatively slight. Certainly the facilities for treating gunshot and sabre wounds must have been exceedingly primitive. In those days of slow sailing frigates, before wireless telegraphy, news of the battle did not reach Boston until the *Constitution* arrived at port on Sept. 1. In that period there would have been ample time for hospital gangrene to supervene in many cases. It is especially tempting to a physician to undertake the imaginative reconstruction of the circumstances under which his predecessors in the craft have labored. From the well-equipped hospital quarters of the modern battleships alongside, it is a far regression to the cockpit of the *Constitution* or the dispensary of the *Success*, yet that transition represents with tolerable accuracy the evolution of a century in the methods and practice of the naval surgeon.

THE PROBLEM OF MEDICAL RELIEF FOR IMMIGRANTS.

European governments are said to be perfecting organizations for making their emigrants alien to our country, and a source of profit to the fatherland. These organizations are more thorough and increasingly systematic than are our procedures for turning the immigrant into an American. In a single year our resident aliens, while enjoying our hospitality, have accumulated in savings here, and have invested abroad from $275,000,000 to $300,000,000. Naturally these sojourners among us are the subject of solicitous care from the countries of their birth. A great difficulty with our immigrant problem is that we do not get the newcomers normally distributed throughout our vast and ample territory. They tend to congre-

gate in our cities, thus increasing a population congestion, with its appendant evils, political, social, economic—and medical.

It is especially the medical aspect of the immigrant situation which deserves a word. Our profession is ever ready to treat without question and without price those visiting our hospitals and dispensaries. It seems at times a questionable condition of things that demands medical charity, which must come from the unremunerated strength and time of physicians, in behalf of aliens who are yearly abstracting from our people and our land resources to the value of hundreds of millions of dollars!

MEDICAL COLLEGES AND PUBLIC HEALTH.

Believing that the average young physician is apt to regard his patients too much from the standpoint of people to be cured of the diseases from which they are suffering and too little from the standpoint of individuals to be protected from disease and to be prevented from giving disease to others, the State Department of Health has, with the co-operation of the deans of all the medical colleges in the State of New York, formulated plans to include in the curricula of these schools a systematic course of instruction in public health and prevention of disease. While some of the ten medical colleges in the state have already been doing commendable work along this line, it is now proposed that all should co-operate in formulating a course of study to be adopted in every college. A committee, consisting of Dr. William A. Howe, Deputy Commissioner of Health, and representatives of the medical department of Columbia University, New York University and Bellevue Hospital Medical College, Syracuse University Medical School, and the New York Homeopathic Medical College, will shortly meet and draw up a syllabus of the course of study to be adopted, which, after formal approval, will be recommended to the deans of the ten colleges. It is purposed that the lectures in this course shall be given in part by members of the staff of the individual colleges, in part by representatives of the State Department of Health, and in part by representatives of the local city health departments. It has also been suggested that each college shall select one member of its faculty to visit each of the other colleges in turn to give one of the lectures in the course. The State Health Department, it is announced, regards this educational work among medical students as affording great possibilities of usefulness and the beginning of a step which will lead to great improvement in the general public health; giving, as it will, the young men a broader outlook in their profession and insuring that every student will have the opportunity to acquire at least the rudiments of public health work, including the relation of the practising physician to local boards of health and health officers and a knowledge of modern methods of preventing the spread of communicable diseases while at the same time it will furnish some training along the lines necessary to be acquired by those desiring to become health officers. Public health work in the state of New York, as well as elsewhere in this country, has been hampered by the fact that no means has existed for the training of health officers. The physician taking up public health work has had to learn his duties after receiving his appointment and has had to acquire a knowledge of how to perform them as best he could. The course of instruction which it is planned to give in the medical colleges of the state will not, of course, be as complete and thorough as is really necessary for the training of efficient health officers, such as is given to the public health workers in the more advanced countries of Europe; but, as mentioned, it will be a step in the right direction, and the doctors of the future who have taken the course will not be handicapped to so great a degree as the present generation of health officers has been.

THE SWISS NATIONAL ANTI-CANCER ASSOCIATION.

On May 1, 1910, there was held at Berne, Switzerland, a reunion of physicians, under the leadership of Dr. Schmid, director of the Swiss Federal Sanitary Service, to discuss the problems associated with the increase of cancer in that country. At that time a committee was appointed to consider the matter, and the fruition of its deliberations has been the recent formation of the Swiss National Anti-Cancer Association. This society, composed of physicians, sanitarians and publicists, has issued a circular pointing out that cancer is probably proportionately more prevalent in Switzerland than in any other country, and urging upon the people the importance of combating the disease by every known means. The purpose of the organization is to promote research into the etiology

and cure of cancer, to disseminate popular information about it, to urge people to seek early medical advice and avail themselves of the opportunities of prompt surgical treatment, and to establish clinics for the care, alleviation and study of inoperable cases. By these means it is hoped to focus general and scientific interest on the malady which at present seems the most inexorable and hopeless of all those that destroy human happiness and life.

MEDICAL NOTES.

PHYSICIAN'S BEQUEST TO A MEDICAL SCHOOL.—Upon the recent death of his widow, the estate of the late Dr. J. E. Robinson, of Kansas, valued at $100,000, has reverted to the University of Kansas, and will be used for the medical school.

HONORARY DEGREE FOR DR. MELTZER.—It is announced that Dr. S. J. Meltzer, of the Rockefeller Institute for Medical Research, New York, who will represent the United States at the meeting next month in Dundee, Scotland, of the British Association for the Advancement of Science, will on that occasion receive the honorary degree of LL.D. from the University of St. Andrews.

USE OF THE X-RAY IN PEARL FISHING.—In the interests of conservation, it has been suggested that the Roentgen ray be employed to determine the presence of pearls in oysters, thereby preventing the needless destruction of many molluscs which might thus be saved for food or replaced in the sea.

THREE CENTENARIANS.—Richard Whitehorse, senior chief of the Ute Indians, who died recently at Red Rock, Okla., was locally reputed to be over 100 years of age.

Joseph LaBuda, who died last week at Chicago, is said to have been born in December, 1808. He is survived by two children and by one hundred grandchildren, great-grandchildren, and great-great-grandchildren.

Mrs. Katherine Kapczinski, who died at Alpena, Mich., on Aug. 10, was alleged to have been born in 1799. She is said to have been active and in good health until a year ago.

A LIVING CENTENARIAN.—Augustin Cromwell, of Norwood, Pa., near Philadelphia, celebrated on Aug. 24 the supposed centennial anniversary of his birth. He has been totally blind for several years, but is otherwise in excellent health. He is said to be a descendant of Oliver Cromwell, the Great Protector.

A PROLIFIC SCOTSMAN.—Peter G. Wallsu, a Scotsman, who died on Aug. 22 in Harrison, N. J., at the age of 64, is said to have been the father of 25 children by two successive wives. He is survived by his widow, by 16 of his children, but by only 7 grandchildren.

REFORM OF PHYSICIANS' CHIROGRAPHY.—The sixtieth annual convention of the American Pharmaceutical Association was held last week at Denver, Colo. A resolution was passed suggesting legislation as a means of securing legible chirography by physicians in the writing of prescriptions.

RABIES AMONG PENNSYLVANIA CATS.—Report from Philadelphia, on Aug. 21, states that rabies has been found to be extensively epizöotic among cats in the neighboring town of Rogersford, Pa. Several persons are said to have become infected with the disease after being bitten by the cats.

LEPROSY IN THE UNITED STATES.—During the year 1911 there were reported to the United States Public Health and Marine Hospital Service 278 cases of leprosy in this country, of which only 72 were isolated and cared for by local authorities.

OPIUM SMUGGLED IN A MAIL BAG.—Report from Honolulu, Hawaii, on Aug. 21, states that on Aug. 8 $5000 worth of opium was found in a mail bag which arrived on that date at Honlulu from the Orient on board the steamship *Manchuria*.

UNITED STATES PUBLIC HEALTH SERVICE.—Report from Washington, D. C., in the issue of *Science* for Aug. 23, states that on Aug. 14 President Taft signed the bill which enlarges the functions of the Public Health and Marine-Hospital Service and changes its name to the United States Public Health Service.

"Under this law the new Public Health Service is given very wide authority to investigate the 'diseases of man and conditions influencing the propagation and spread thereof, including sanitation,' etc. All of the previous laws relating to quarantine, the eradication of certain epidemic diseases and the scientific investigations of the Hygienic Laboratory in bacteriology, pharmacology, chemistry, medical zoology, etc., remain in force, so that now the United States has a national public health service with greater scope than that of any of the other leading nations."

Extension of Pure Drug Law.—Report from Washington, D. C., on Aug. 24 states that President Taft has signed the Shirley Bill, which makes more drastic the pure food and drugs law as applied to patent and proprietary medicines.

"The bill prohibits, under a heavy penalty, the publishing of claims for 'cure alls' that cannot be substantiated, or which have no foundation in fact. The legislation is of importance to medicine manufacturers and gives the government a much greater authority over the trade in nostrums."

Medical Bequests by a Physician.—It is announced that the will of the late Dr. John Dixon Mann, who for the 20 years prior to his death in April, 1912, was professor of forensic medicine in the University of Manchester, England, contains a bequest to the university of £1000, to be added to the fund for the encouragement of medical research.

Election of Sir William Ramsay.—Report from London states that Sir William Ramsay, the distinguished British chemist and physicist, has been recently elected a foreign associate of the Paris Academy of Medicine.

British Medical Awards.—It is reported that the Royal College of Physicians, London, has recently awarded the Moxon gold medal for research in clinical medicine to Sir David Ferrier, F.R.S., and the Murchison memorial scholarship to Dr. W. Rees Thomas.

Gift to Johns Hopkins Hospital.—Report from Baltimore on Aug. 13 states that the Johns Hopkins Hospital in that city has recently received a gift of $220,000 from Mr. James Buchanan Beady of New York.

Bubonic Plague in Porto Rico.—The weekly report of the United States Public Health Service for Aug. 23 states that up to Aug. 20, the total number of human cases of bubonic plague in Porto Rico was 49, "of which 33 occurred in the city of San Juan, including the section known at Puerta de Tierra; 11 in Santurce, a residential suburb of San Juan; 2 at Carolina, a town 13 miles from San Juan; 1 at Loiza, a short distance from Carolina; 1 at Dorado, 13 miles from San Juan; and 1 on a vessel at Arroyo, on the southern coast of the island."

Prevalence of Yellow Fever in 1911.—During the calendar year 1911 there were reported in the western hemisphere a total of 544 cases and 397 deaths of yellow fever. Of these, the greatest number, 236 cases and 88 deaths, occurred at Guayoquil, Ecuador.

Prizes of American Therapeutic Society.—On recommendation of the Council of the American Therapeutic Society, at the annual meeting of the Society held in Montreal, Canada, June 1, 1912, it was voted that prizes of two hundred and fifty ($250.00), one hundred and fifty ($150.00) and one hundred dollars ($100.00) be awarded to the best reports on subjects relating to Therapeutics, on the following conditions:

1. The competition is to be limited to qualified physicians in the United States and Canada.

2. The subject of the competition is to be limited to a substance or preparation which is official in the United States Pharmacopœia.

3. The research may be either wholly laboratory or clinical, or laboratory and clinical combined, and must be conducted in a public institution.

4. The reports must be (a) designated by a distinctive word or motto, and (b) must be accompanied by a sealed envelope marked with the said word or motto, and containing the name and address of the competitor and of the laboratories or hospitals in which the research was conducted. (c) The report and protocol must be typewritten. (d) These must be in the hands of the Chairman of the Committee before April 1, 1913.

5. The reports and protocols are to be judged by a Committee consisting of the three Vice-presidents of the Society, who shall decide which are the best reports as showing valuable therapeutic research, and shall return their decision, together with all the papers submitted to them, to the Chairman of the Council of the Society before May 1, 1913.

6. The Chairman of the Council shall then return the unsuccessful reports to their authors, and shall notify the successful author or authors.

7. The successful report or reports shall be read by the author, or a designated member of the Society, on the first day of the meeting of the Society, immediately after the President's address.

8. All matters connected with the competition shall be considered as absolutely confidential by the Chairman of the Council and the Judges, except as to the successful competitors.

9. The Vice-presidents as judges may fail to award any prize if the report or reports en-

tered in the contest are not found to be of a sufficiently high standard.

10. In case any Vice-president shall fail to act, the President of the Society shall designate a substitute.

COMPARATIVE FREQUENCY OF SUICIDE IN EUROPEAN NATIONS.—A comparative table of European racial suicide rates has been recently compiled by a German statistician, who finds that the total annual number of suicides per million inhabitants is 238 in France, 228 in Switzerland, 220 in Denmark, 207 in Prussia, 90 in England, 55 in Norway, 29 in Ireland, and only 20 in Spain.

NATIONAL NAVAL MEDICAL RESERVE CORPS.—Report from Washington, D. C., states that on Aug. 12 the national Senate passed without debate a bill creating a medical reserve corps of the United States Navy. It is believed that this measure will "add enormously to the resources of the medical department of the navy and also offer the possibility of affiliating prominent physicians, surgeons, hygienists and laboratory workers with the navy, bringing the benefit of their advice in medical problems within convenient official reach."

At the conclusion of a recent letter to the Senate Committee on Naval Affairs, Secretary Meyer said:

"It would also be a means of interesting the medical profession throughout the country in the navy and thus immeasurably widen the circle from which to recruit the medical corps with young men of promising ability. Anyone of the larger medical centres of the country could furnish a sufficient number of well qualified young physicians to fill the existing vacancies in the regular service, but the inducements which the navy is now able to offer are not sufficient to attract them.

"The creation of a reserve corps would rectify this difficulty under which the service is now laboring by making it possible to offer candidates a position with adequate pay and allowances during the period of about a year before they become eligible for commissions."

If this measure becomes law it would mean:

"That the medical department of the navy will be placed in close contact with eminent members of the profession throughout the country—a fact already accomplished in the army—enabling it to call them into consultation and to profit by their advice when occasion requires.

"It would give elasticity to a corps that, while adequate in peace, is of necessity inadequate in war.

"It would render it possible to educate a large number of the civilian branch of the profession in the special work required of the service, so that when called upon they would be able to respond and take up their duties without additional instruction.

"And it would, furthermore, make service in the navy as attractive as that in the army—the enactment of this legislation making the candidates, if previously found qualified for the reserve corps, available for detail to duty, at the Naval Medical School, which would graduate them into the regular service.

"No increase of expenditure of money would be required, except when the emergencies contemplated, and for which provision would thus be made, do arise, and when the members of the reserve may be temporarily ordered to active duty."

UNIVERSITY OF MICHIGAN HONORARY DEGREES.—Among the honorary degrees conferred upon physicians at the recent celebration of the seventy-fifth anniversary of the University of Michigan were those of Sc. D. on Dr. John Elmer Weeks, professor of ophthalmology in New York and Bellevue University, Dr. John Jacob Abel, professor of pharmacology in Johns Hopkins University, and Dr. Henry Sewall, professor of physiology in the University of Colorado; and those of LL. D. on Dr. William Henry Howell, professor of histology and physiology in the University of Michigan from 1890 to 1892, and Dr. James Playfair McMurrich, professor of anatomy in the University of Toronto.

SUCCESSOR TO DR. WILEY.—Report from Washington, D. C., on Aug. 10 states that President Taft has announced to the cabinet his decision to appoint Mr. R. E. Doolittle to succeed Dr. Harvey W. Wiley as chief of the bureau of chemistry of the United States Department of Agriculture.

A LIVING CENTENARIAN.—Mrs. Enos Foord, of Los Angeles, Cal., is said to have been born in September, 1810, at Dedham, Mass. Her health is reported to be excellent. She has been for many years a widow.

A PROLIFIC NEGRESS.—It is reported that a negress, resident near Niagara Falls, has recently given birth, at the age of 44, to her twenty-eighth child. Her age at marriage is not given, nor is it stated whether any of her pregnancies were multiple. Whatever the details, however, this case, if true, certainly affords a remarkable instance of persistent human fecundity.

BOSTON AND NEW ENGLAND.

Boston Mortality Statistics.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Aug. 17, 1912, was 200, against 204 the corresponding week last year, showing a decrease of 4 deaths, and making the death rate for the week 14.48. Of this number 108 were males and 92 were females; 192 were white and 8 colored; 123 were born in the United States, 77 in foreign countries, and 0 unknown; 47 were of American parentage, 133 of foreign parentage, and 20 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: diphtheria, 16 cases and 2 deaths; scarlatina, 1 case and 0 deaths; typhoid fever, 19 cases and 2 deaths; measles, 21 cases and 0 deaths; tuberculosis, 49 cases and 19 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 10, whooping cough 4, heart disease 26, bronchitis 1. There were 18 deaths from violent causes. The number of children who died under one year was 51; the number under five years 64. The number of persons who died over sixty years of age was 51. The deaths in hospitals and public institutions were 93.

Deducting the deaths of non-residents, the total is 173. The corrected death-rate is then 12.53.

Cases of infectious diseases reported to the Boston Board of Health for the week ending Aug. 20, 1912, are: diphtheria, 10; scarlatina, 4; typhoid fever, 21; smallpox, 0; tuberculosis 54.

The death-rate of the reported deaths for the week was 15.93.

Enlargement of North Shore Babies' Hospital.—The attempt is being made to raise the sum of $10,000 to provide for the erection of a nurses' home and of a surgical ward for the North Shore Babies' Hospital at North Salem, Mass., and also to make it possible to keep the institution open throughout the year.

Recent Milk Fines.—Before the Malden district court last week, a dealer of Everett, Mass., was fined $25 for having in his possession milk not up to the standard required by law. Before the Charlestown district court, a Boston firm was fined $20 on a similar charge, and a local dealer was find the same amount for having in his possession for sale oleomargerine not properly marked as such.

Fumigation of Ships at Boston.—In accordance with advice from Surgeon-General Blue of the United States Public Health Service, all vessels arriving at Boston from British, South American, West Indian and Asiatic ports will for the present be fumigated in order to prevent the possible introduction of bubonic plague infection into this city.

Reappointment of Dr. Howard on the Board of Insanity.—The term of office of Dr. Herbert B. Howard, of Boston, chairman of the Massachusetts State Board of Insanity, will expire next month. It is most important that the services of so valuable an official should be secured to the Commonwealth by his reappointment. To this end a petition has been sent to the Governor, signed by over one hundred physicians. It is to be hoped that members of our profession generally throughout the state will lend their influence to secure the reappointment of Dr. Howard.

Three Living Centenarians.—Mrs. Ebenezer Carpenter, of Worcester, Mass., who is said to have been born on Aug. 26, 1806, at Old Warwick, R. I., celebrated on Monday of this week her supposed 106th anniversary. Four of her children are still surviving and she has many grandchildren and great-grandchildren.

George Henry Murdock, of Somerville, Mass., who is said to have been born on Aug. 17, 1812, in a village near Ashby, Leicestershire, England, recently celebrated his supposed centennial anniversary by pursuing his usual day's work as a brush-maker, which extends from 5 a. m. to 5 p. m., and includes a walk of 12 or 15 miles. He attributes his longevity and excellent health to hard work and to the moderate use of alcohol and tobacco. He began to smoke at the age of 12, and since he was 14 has drunk at least one glass of wine or ale daily. It would seem, however, that his example is testimony to the value of the regularity rather than the nature of his habits.

Miss Sarah C. Dodge, of Medford, Mass., who is said to have been born on Aug. 15, 1812, at North Beverly, Mass., celebrated last week the supposed centennial anniversary of her birth. She was a dressmaker by occupation and always had excellent health until she was made helplessly lame by a fracture of the neck of the femur some years ago. She has no surviving immediate relatives.

FINE FOR ILLEGAL SALE OF MILK.—Before the Malden district court last week a dealer of Everett, Mass., was find $10 for selling milk without a license to do so.

REPEATED INCIDENCE OF LIGHTNING UPON A HOSPITAL.—In the issue of the JOURNAL for July 18, [Vol. CLXVII, p. 104], we chronicled the misfortunes of the Weymouth (Mass.) Hospital which in a recent local thunderstorm had been four times struck by lightning. On Aug. 14 this hospital was again struck, and the resultant fire caused a damage of $1000. This unfortunate institution must stand in an exceedingly exposed situation. At all events its recent experience seems to controvert the popular axiom about the incidence of lightning.

REPORT OF BROCKTON HOSPITAL.—The recently published sixteenth annual report of the Brockton (Mass.) Hospital records the work of that institution for the calendar year 1911. During this period the total number of patients treated was 940, an increase of 118 over 1910. In addition to these 524 cases were treated at the emergency station, and 72 in the out-patient department. The trustees call particular attention to the great need of another public ward building and of an obstetric ward. During the year, one nurse was graduated from the hospital training-school.

WORK OF BABY HYGIENE ASSOCIATION IN JULY.—A recently issued report of the Boston Milk and Baby Hygiene Association shows that, during the month of July past, there were under the care of the Association 1218 babies in this city, of whom only two died. During the month the Association kept in operation nine milk stations, and at these stations were held 61 conferences to which mothers brought their children for individual consultation. This work should be of definite value, both directly and by education and example, in reducing the preventable mortality in Boston.

NEEDS OF MASSACHUSETTS BABIES' HOSPITAL.—A circular letter of appeal has been recently issued through the daily press by the directors of the Massachusetts Babies' Hospital. The financial needs of this hospital are urgent, and without increased public support it cannot continue on the present scale its valuable work in the community. As an explanatory statement of this work and of these needs, the directors' letter is herewith reprinted in part:

"The work of the Massachusetts Babies Hospital is by no means confined to the hospital care of babies. An equally important part of the work is our other department, the placing in carefully supervised country boarding homes, babies whose parents are temporarily unable to care for them properly but who pay what they can towards their support until they can be taken home. When babies go home we now give the parents full instructions in feeding so that the baby receives more intelligent care at home and home conditions may be perhaps permanently improved.

"The milk question is just as important to babies at board as to babies in their homes and we are considering the advisability of having a station not unlike a milk station in our colony; from the station we could supply milk to our boarding women, thereby attaining two ends: First, we should control the milk supply, buying it of one man who would have to meet our requirement. Second, we should be able to give the faithful women, who spend so much time night and day caring for our babies, the same encouragement and advice that is being given now to the babies' own mothers by the Milk & Baby Higienic Association. This association cares for the babies in the homes and the Massachusetts Babies' Hospital cares for the babies removed from their homes temporarily.

"We are most urgently in need of money and unless the public generously responds to our appeal we cannot do our part in making Boston one of the first cities in the work of preventing infant mortality.

"We wish every reader would investigate the kind of work we are doing; also, consider, without this work, where the sick mother will place her baby while she is at the hospital or in the country for rest and care; what will be done with those babies who must have breast milk in order to live; where will the deserted mothers and their babies who are now under our care, go if we are no longer able to help them.

"Should any subscriber feel more interested in one part of our work than another their donation will be used for whichever part they express a preference.

"Donations may be sent to Walter Hunnewell, Jr., 19 Congress street, Boston."

NEW YORK.

EXTENSION COURSE IN NEUROLOGY.—The full announcement of the International Extension Course in Nervous and Mental Diseases which is to be held at the Fordham University School of Medicine in September has now been made. It is stated that, in order to increase the scope of medical instruction in the specialties in this country, the medical faculty of the university has resolved to institute a regular series of such international extension courses, devoted to a sin-

gle branch, of which this is to be the first. It will begin on September 9 and last for three weeks, and will be conducted daily from 9 a. m. to 7 p. m. For this course the faculty will have the assistance of the following distinguished foreign and American physicians and scientists: Dr. Nicolas Achucarro, coajutor of Ramon y Cajal, of Madrid; Carl L. Alsberg, M.D., Ph.D., of Washington, biological chemist to the U. S. Government; H. H. Goddard, Ph.D., psychologist of the New Jersey State School for Feeble-Minded Children; Henry Head, A.M., M.D., F. R.C.P., F.R.S., of the London Hospital, Croonian Lecturer, Royal College of Physicians, 1911; Gordon Holmes, B.A., M.D., lecturer on physiology of the nervous system, London University; Dr. C. J. Jung, associate in psychiatry, University of Zürich; Dr. Alwyn Knauer, assistant to professor Emil Kraepelin at the Psychiatrische Klinik, Munich; Dr. J. V. May, president of the New York State Commission in Lunacy; Dr. Colin K. Russell of McGill University, physician to the Royal Victoria Hospital, Montreal; Dr. William A. White, superintendent of the Government Hospital for the Insane, Washington.

A commencement will be made with the normal and pathological anatomy, histology, physiology, biological chemistry, and bacteriology of nervous and mental diseases. Simultaneous with these fundamental subjects, methods of clinical examination will be taught. The subjects will follow one another in logical sequence. All cognate sciences and laboratory practice will be made subservient to clinical purposes. No purely didatic lectures will be given. The teaching, exclusively in English, will be profusely illustrated by patients, specimens, cinematographs and lantern slides. Correlated practical courses in histology, normal and morbid, in bacteriology, in operative surgery, and in psychoanalysis will be provided. For those especially interested in any particular subject, such as histology, bacteriology, surgery of the nervous system, orthopedics, electrotherapeutics, ophthalmology and laryngology, alternate courses will be arranged, so that each student may have an opportunity to extend his knowledge in whatever subject he chooses. The size of the special classes will be strictly limited, so as to ensure individual instruction to every member of each class. In the various hospitals associated with Fordham University abundant clinical material will be at the disposal of those taking the course. On Saturdays excursions will be made to various psychiatry institutions in New York and adjacent States. Americans who have not had the opportunity for foreign study will thus have foreign study brought to them here. What would require months of journeying to glean in Europe will be available in three weeks, in an organized form, and physicians, it is believed, will be offered a training in nervous and mental diseases as thorough, advanced and practical as any which is obtainable at the present day. The charges for the course, including a matriculation fee of $5, are $40.

Vital Statistics in July.—The weekly reports of the Health Department show that the mortality in the city in the month of July represented an annual death-rate of 13.94, as against 12.55 in June and 14.57 in July, 1911. This is a remarkably good showing for this season of the year, and while the death-rate for the week ending July 13 ran up to 18.22, from 12.84 in the week preceding, in the other weeks of the month it was considerably below 14. Among the diseases in which there was an augmented fatality were the following: The weekly average of deaths from typhoid fever increased from 8.25 in June to 10.25 in July; the weekly average from epidemic cerebrospinal meningitis, from 5 to 7; from whooping-cough, from 4.75 to 7.75; from diarrheal diseases under five years of age, from 51.75 to 192.75; from cancer, from 72.25 to 75; from appendicitis and typhlitis, from 14 to 17; from hernia and intestinal obstruction, from 10 to 12; and from Bright's disease and acute nephritis, from 101.5 to 103.5. Among the diseases in which there was a diminished mortality were the following: The weekly average of deaths from measles declined from 18.75 to 11.25; from scarlet fever, from 14.25 to 7; from diphtheria and croop, from 20.5 to 15; from influenza, from 1.5 to 1; from pulmonary tuberculosis, from 153.75 to 145; from acute bronchitis, from 9 to 5.75; from pneumonia, from 73.5 to 46.5; from bronchopneumonia, from 78.25 to 56; from organic heart diseases, from 152.5 to 140.5; and from puerperal diseases, including septicemia, from 11 to 10. During the last week of the month the deaths from pulmonary tuberculosis fell to 127, the lowest weekly mortality from this disease recorded for a very long time.

The report of the appraisal of the estate of Catherine E. Daly, widow of Henry F. Daly, a New York actor, which has just been filed in the Surrogate's Court, shows that the American So-

ciety for the Prevention of Cruelty to Animals is to receive $75,790 and St. Luke's Hospital $10,000. Shortly before the death of Mr. Daly duplicate wills were made by husband and wife, each leaving all the property to the other, with the proviso that on the death of the survivor $10,000 should go to St. Luke's Hospital and the remainder to the society. The bequest to St. Luke's is to establish, in memory of Mr. Daly, two beds for the benefit of "dramatic, minstrel, variety and circus performers, one bed for a man and one for a woman."

POLIOMYELITIS IN BUFFALO.—It is reported that one hundred and sixty cases of poliomyelitis with nine deaths up to August 25th had appeared among the foreign population of Buffalo. It is noteworthy that in no instance has more than one case appeared in the same family.

Current Literature.

MEDICAL RECORD.
AUGUST 17, 1912.

1. CORNING, J. L. *The Diagnostic Significance of Abnormally Quick Fatigue (Apocamnosis) of the Orbicularis Oris Muscle.*
2. AUSTIN, C. K. *A Case of Dental Developmental Anomalies, With Cyst Formation.*
3. VOORHEES, I. W. *Surgery of the Hypophysis with Especial Reference to the Endonasal Method of Hirsch.*
4. *AGRAMONTE, A. *Additional Note Upon a So-called Parasite of Yellow Fever (Seidelin).*
5. KIRBY-SMITH, J. L. *Bullous Dermatitis Following Vaccination with a Report of a Case.*
6. ZIEGLER, M. *A Marked Case of Facial Asymmetry Occurring in a Case of Scrofuloderma.*
7. WEBSTER, D. *A Case of Sarcoma of the Orbit.*
8. HOOVER, F. P. *Cellulitis of the Orbit.*

4. Agramonte made a study of the blood in search of the bodies described by Seidelin and considered by him the causative agent of yellow fever. These bodies which take the Giemsa stain are almost never present in health but the writer succeeded in demonstrating them in uncinariasis, gastro-duodenitis, urticaria, measles, secondary anemia after hemorrhage, and in other pathological conditions in which the existence of yellow fever infection could be absolutely excluded. He considers them merely nuclear and protoplasmic fragments. [L. D. C.]

NEW YORK MEDICAL JOURNAL.
AUGUST 17, 1912.

1. GIVENS, A. J. *The Prevention of the Causes of Insanity.*
2. KNAPP, M. I. *The Newer Teachings of the Diseases of the Alimentary Canal.*
3. HERRMAN, C. *The Commoner Contagious Diseases of Childhood.*
4. *FRIEDMANN, G. A. *The Glycyltryptophan Test.*
5. VON RUCK, S. *The Prognosis of Tuberculosis of the Larynx.*
6. HULST, F. A. *The Pathology of Chorea.*
7. EASTMAN, F. C. *Chorea.*
8. VAN SLYKE, D. D. *The Proteins.*

4. Friedmann tells of his further experience with the glycyltryptophan test and reports nineteen more cases in which he used it. In no case of anacidity except cancer was a positive reaction obtained. He considers the test valuable but not pathognomonic. The tryptophan test without glycyltryptophan is worthless. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
AUGUST 17, 1912.

1. FOX, G. H. *A Broader View of Pityriasis Rosacea.*
2. *ILL, E. J., AND MINNINGHAUS, W. D. *An Experimental Study of the Treatment of Cancer with Body Fluids.*
3. BOWEN, A. L. *The State Institutions and Some of Their Problems which Medical Men May Help to Solve.*
4. *HARSE, M. *The Bacterial Etiology of Acne Vulgaris.*
5. *BLAND, P. B. *Sarcoma of the Vagina.*
6. *ELY, L. W. *The Pathology and Classification of Chronic Joint Disease.*
7. GOLDBERGER, J., AND ANDERSON, J. F. *Recent Advances in Our Knowledge of Typhus.*
8. *IRVIN, I. *Immunity and Specific Therapy in Experimental Cancer.*
9. NICOD, M., KRUMMICH, C., PRATT, J. S., AND BUBLOWA, J. S. *Four Cases of Typhus Fever (Brill's disease) in One Family: With Successful Inoculation into Guinea-pigs and Monkeys.*
10. *CARRELL, A. *The Preservation of Tissues and Its Applications in Surgery.*
11. *SOLPHIAN, A., AND BLACK, J. *Prophylactic Vaccination Against Epidemic Meningitis.*
12. NOLEEN, G. A. *Erythromelalgia.*
13. BULKLEY, L. D. *Diet and Hygiene in Diseases of the Skin.*
14. WILLIAMS, E. *Intramammary Injections of Oxygen in Treatment of Eclampsia.*
15. SMITHIES, F. *Note on a Peptid-splitting Agent in Human Blood-serum.*
16. VALLELY, J. L. *So-called Precocious Menstruation Combined with Occurrence of Milk in the Breasts of an Infant. A Case with Hereditary Features.*
17. TOWANA, G. *Intrahepatic Hemorrhage of Traumatic Origin. Operation; Recovery.*
18. BROUN, P. *Suspended Heart Action in Acute Dilatation. Cardiac Massage; Recovery.*
19. BERGEUER, G. T. *Hernia of Diverticulum of the Bladder.*
20. SMITH, R. K. *Another True Hermaphrodite.*

2. Ill and Minninghaus have treated twenty cases or carcinoma of various regions with a chylous ascitic fluid similar in nature, history and results to that originally used by Hodenpyl, who was first to use cancerous ascitic fluid in the treatment of cancer cases. No cures are reported but extenuation of growth and relief from pain in many cases.

4. Harse believes that all the various bacilli and cocci described as the cause of acne are only different phases of the one etiologic organism, the acne bacillus.

5. Bland states that the grape-like sarcoma of the vagina, or sarcoma botryoides, is quite frequent in infancy and of a most fatal nature. All genital discharges in infants should be regarded with suspicion. The vagina should be examined with a speculum and is best accomplished with chloroform anesthesia.

6. Ely believes that we cannot classify chronic joint diseases on the basis of the cause, for the cause of many is not definitely known. The author, however, believes that they are all of infectional origin. He classifies them as follows: Type 1: cases characterized by proliferation of the synovia and of the lymphoid marrow, or of both. As a result of the proliferation of these two tissues the cartilage and bone atrophy. Type 2: Cases characterized by degeneration of synovia and marrow as a result of which the cartilage and bone tend to hypertrophy.

8. Irvin believes that the malignant transplantable tumors of white rats and mice are really analogous to human cancer and react in the same manner, and that the mechanism of immunity in experimental cancer consists most probably in an active inhibitory influence of the normal organ tissues on the cancer cells and is analogous to immunity in bacterial diseases.

10. Carrel has found that parts of spleen, skin, heart, periosteum and bone can be preserved in a condition of latent life in cold storage in Ringer's solution or petrolatum for six days and then be successfully grafted.

11. Solphian and Black give the results of their experimental work on the prophylactic vaccination of eleven medical students against acute meningitis. They found a leucocytosis for a few days following vaccination and a prompt response in the formation of immune bodies about four days after the first vaccination which increases rapidly after repeated injections. Agglutinins develop rapidly in large quantities and sharp complement fixations at the end of the third week. Apparently very large doses did not produce much higher immunity than smaller doses. A theoretical objection exists to the use of this vaccine in the development of a strong negative phase but the authors do not believe that this is a real danger. [E. H. R.]

THE LANCET.
JULY 27, 1912.

1. *GIBSON, G. A. *The Relation of the Circulation.*
2. *PAUL, F. T. *Personal Experiences in the Surgery of the Large Bowel.*
3. *FRENCH, H. C. *Syphilitic Lung Affections and Immunity in Native Races.*
4. YEARSELY, M. *The Causes Leading to Educational Deafness in Children, with Special Reference to Prevention.* (Conclusion.)
5. CLARK, G. H., AND LINDSAY, D. *The Distribution of Chloroform in the Blood.*
6. SMITH, E. B., AND WOODFORDE, A. W. G. *Two Unusual Forms of Meningitis Occurring in Infancy.*
7. JAMES, R. R., AND FEDDEN, W. F. *Two Cases of Pulsating Exophthalmos, in which the Carotid Artery was Ligatured.*
8. EDRIDGE-GREEN, F. W. *The Claim of Sir Charles Bell to the Discovery of Motor and Sensory Nerve Channels.*

1. Gibson in a paper which does not well adapt itself to review discusses the circulation and its relation to the nervous system as shown in Graves' disease, myxœdema, acromegaly, Addisonism, the pituitary body, etc.

2. Cf. British Medical Journal, July 27, 1912.

3. French believes that among natives in uncivilized regions neglect, dirt and pus are primarily responsible for perpetuating severe early forms of syphilis. In prevention he believes that good general health and conditions which lead to it are as important as administering mercury and the iodides. [J. B. H.]

AUGUST 3, 1912.

1. ALLBUTT, T. C. *The Integration of the "Social Organism."*
2. SHAW, E. H. *Cases Illustrating the Value of an Examination of the Blood.*
3. *FRASER, A. M., AND CLARK, H. *A Municipal Dispensary and Tuberculin Treatment.*
4. TELFORD, G. D. *The Treatment of Habitual Dislocation of the Shoulder-joint.*
5. RUSS, C. *Some Observations Concerning Syphilitic Sera.*
6. CAMPBELL, H. *Observations on the Neuron.*

3. Fraser and Clark describe a "tubercular dispensary." The title is rather a misnomer, for such a dispensary to be successful must be a scheme "of which the dispensary is the centre" and which must also include a hospital, a sanatorium, open air-residential schools, have supervision, a care committee and many other measures. These factors they discuss. Cases are divided into seven classes as follows: 1. "Contact"; 2. "probably phthisical"; 3. "early, slight"; 4. "early, acute"; 5. "chronic, slight"; 6. "chronic, advanced"; 7. "severe." They gave statistics as to results of treatment emphasizing the value of tuberculin although it would seem that this was but a small factor in the results obtained. [J. B. H.]

BRITISH MEDICAL JOURNAL.
JULY 27, 1912.

THE EIGHTIETH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.

1. BARR, T. *"What Are We?. What Are We Doing Here?. Whence Do We Come and Whither Do We Go?"*
2. GIBSON, G. A. *The Relation of the Circulation.*
3. *PAUL, F. T. *Personal Experiences in the Surgery of the Large Bowel.*

3. Paul discusses the surgery of the large intestine considering the following topics: colotomy, short-circuiting, colectomy and excision of the rectum. Much of the paper is devoted to a study of cancer and its manifestation and operative treatment. He discusses the subjects mentioned above in some detail as to operation and results. There are numerous statistical tables. [J. B. H.]

AUGUST 3, 1912.

BRITISH MEDICAL ASSOCIATION, SECTION OF MEDICAL SOCIOLOGY.

1. MCVAIL, J. C. *Introductory Remarks.*
2. RENTOUL, R. R., et al. *Discussion on a Public Medical Service under Professional Control.*
3. *DEWAR, M., *et al. Discussion on Reform of Hospital Out-patient Departments.*
4. GULLAN, A. G., *et al.. Discussion on Administration Provisions for the Prevention of Malingering.*
5. HARVEY, H., *et al. Discussion on Capitation Payment versus Payment per Attendance Under the National Insurance Act.*

3. Dewar, Grovewood, et al call attention to the great abuse of out-patient departments and dispensaries by people who are well able to pay for their professional service at regular prices. They discuss the remedies for the situation by means of printed notices, special officers whose duty it is to enquire in regard to this of all patients, etc., and cooperation between hospitals and departments. [J. B. H.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT. No. 20.
MAY 16, 1912.

1. BRÜNINGS, W. *Diagnosis and Treatment of Foreign Bodies in the Respiratory Tract.*
2. ARHEIM, G. A. *A Simple Method for Cultivating the Spirocheta Pallida from Human Material.*
3. CITRON, J. *Increasing Resistance to Tuberculosis in the Light of Our Present Knowledge of Immunity.*
4. KRÖNIG AND GAUSS. *The X-ray Treatment of Myomata.*
5. BING, R. *Localization of Tumors of the Cerebellum.*
6. IMPENS, E. *Pharmacological Studies on Luminal; Phenolethylbarbituric Acid.*
7. SCHINDLER, C. *The Technique of Intramuscular Injection of "Joha," and Its Effects.*
8. MEYER, L. *Salvarsan and Paralysis.*
9. NOEHTE. *A Small Improvement in the Apparatus for the Intravenous Injection of Salvarsan.*
10. FEILCHENFELD, W. *Injury to the Eye from Observation of a Solar Eclipse.*

No. 21. MAY 23, 1912.

1. HEILBRONNER, K. *The Early Symptoms of Organic Nervous Disease.*
2. *FREUND, W. A. *The Treatment of Carcinoma.*
3. STÜHMER, A. *Clinical Experiences with Neosalvarsan.*
4. GOLDSTEIN, M. *Luminal, a New Hypnotic.*
5. STRUBEL, A. *Report from the Electrocardiogram Clinic.*
6. DETERMANN AND BRÖKING. *Does the Administration of Iodin Influence the Viscosity of the Blood?*
7. TSUZUKI. *The Treatment of Beriberi with Antiberiberin.*
8. JACOBS, C. *A Pulsating Diverticulum of the Œsophagus.*
9. v. FILLINGER. *Further Communications on the Diminished Resistance of Erythrocytes after Injection of Alcohol.*
10. BERGER, D. *A Review of the Surgery of the Blood Vessels.*
11. DESSAUER, F., AND HERGENHOHN. *A Discussion of the Technique of Taking X-ray Pictures at a Distance.*

2. The authors report a new method for cultivating the spirochæta pallida from human material, which they state is simpler than those previously reported. In a series of 22 cases of syphilis, they obtained positive results in 13; which compares favorably with the reports of other methods.

4. The author reports the use of Luminol in 43 cases of insanity, epilepsy, and delirium tremens. Good results were obtained in 78%, unsatisfactory results in 19%, and no effect was noted in 3%. Sleep was induced in about two hours, and lasted on the average, 8 to 10 hours. The minimum duration was 5 hours. The single dose given was 0.2 to 0.8; the daily maximum not over 1.8 G. In no case was any bad effect noted on the heart, lungs, or kidneys. The blood pressure was slightly raised. The drug appeared to have a slightly cumulative effect.

[C. H. L., Jr.]

BERLINER KLINISCHE WOCHENSCHRIFT. No 19. MAY 6, 1912.

1. DIETRICH A. *Congenital Tuberculosis.*
2. KAPENBURG, G. *The Drug Treatment of Tuberculosis.*
3. *KAUSCH, W. *The Action of Hormonal.*
4. KLOTZ, M. *The Importance of the Normal Intestinal Flora.*
5. PICK, L., AND BIELSCHOWSKY, M. *Histological Findings in the Eye and in the Central Nervous System Following Acute Fatal Poisoning with Methyl Alcohol.*
6. SIMON, W. V. *Myelogenous Chloro-leucaemia (Chloroma), Mistaken for a Malignant Tumor of the Breast.*
7. LANGE, C. *The Collecting of a Gold Solution from the Cerebro-spinal Fluid.*
8. STETTINER, H. *The Treatment of Oxyuriasis.*

3. The author states that at first he was prejudiced against the use of Hormonal, getting no results with small doses. Persisting in its use, he found it of distinct value in cases of chronic obstipation, and in intestinal paralysis following operation, when the dose was given boldly. He saw no ill effects from the use of the drug.

His conclusions were as follows:

1. Hormonal is a powerful means of stimulating peristalsis. 2. In acute intestinal paralysis, intravenous injection should be used, and in chronic intestinal paralysis, the gluteal injection. 3. In the more serious forms of intestinal paralysis, Hormonal may be given in larger doses than ordinarily, (20 cm.). It may be used up to 30–40 cm. in the adult. In any cases the larger doses should be remitted, if the small doses have no effect at the end of 24 hours. 4. Larger doses may cause a diarrhea, but there is no danger from this. Care should however be used when there is a valvular heart lesion.

[J. B. S., Jr.]

No. 20. MAY 13, 1912.

1. BONHOEFFER, K. *The Importance of Methods of Psychiatric Research for the General Practitioner.*
2. VON HANSEMANN, D. *Changes in the Pancreas in Diabetes.*
3. PLESCH, J. *Cases of Pernicious Anemia and Leucemia Treated with Thorium-X.*
4. GUDZENT, F. *Poisoning with Thorium-X.*
5. PINKUSS, A. *The Treatment of Cancer with Mesothorium.*
6. WETZEL, A. *A New Narcotic "Luminal" with Especial Regard to Its Subcutaneous Use.*
7. GRAEFFNER. *Luminal, a New Narcotic.*
8. JULIUSBURGER, O. *Luminal, a New Hypnotic and Sedative.*
9. ZWEIG, A. *Progress in the Diagnosis and Prognosis in Psychiatry.*

No. 21. MAY 20, 1912.

1. FOERSTER, O. *Histological Investigations of the Brain Cortex During Life by Means of Brain Puncture, Where Diffuse Disease of the Central Nervous System Exists.*
2. FROMME, F. *The Specific Treatment of Female Gonorrhea.*
3. HELBING, C. *Experiences with 100 Cleft Palate Operations, with Remarks on the Technic.*
4. ROTHMANN, M. *Is an Experimental Reversal of the Blood Stream Possible?*
5. FABIAN, R. *Three Interesting Diagnostic Mistakes on Malignant Tumors.*
6. ENGEL, E. *Can Transplantation of the Ovaries be Accomplished as a Successful Treatment for the Appearance of Symptoms Following Castration in Women?*
7. LEWANDOWSKI, A. *Hygiene for the Graduates from School.*
8. ZWEIG, A. *Progress in Diagnosis and Prognosis in Psychiatry.*

DEUTSCHE ZEITSCHRIFT FÜR CHIRURGIE.

BAND 115. HEFT 5-6. JUNE, 1912.

1. OPPENHEIMER, K. *Carcinoma of the Duodenal Papilla.*
2. SCHEPELMANN, E. *Clinical and Experimental Work on Tendon Plastics.*
3. OZAKI, Y. *Several Methods for Disinfecting the Hands and the Field of Operation.*
4. ITO, H. *The Operative Treatment of Genuine Common Epilepsy.*
5. HABERER, H. *Volvulus of the Stomach from Carcinoma.*
6. HOLLENSEN, M. *The Value of the von Pirquet Reaction for Prognosis and Treatment in the Various Form of Surgical Tuberculosis. Also the Diagnostic Value of the Rhino Reaction.*
7. *The Traumatology of the Cervical Verterbrae.*
8. VON TAPPEINER, F. H. *The Treatment of Prostatic Hypertrophy, by Exposure of the Testicle to the Roentgen Ray.*
9. BEYER. *A Case of Cholesterin Cyst of the Cerebellum Cured by Operation.*

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

BAND 107. HEFT 2-3. JULY, 1912.

1. MÜLLER, L. R., AND DAHL, W. *The Innervation of the Male Reproductive Organs.*
2. *BENEDICT, F. G. *A Universal Respiration Apparatus.*
3. GRAFE, E., AND WOLF, C. G. L. *Contribution to the Pathology and Therapy of the Severest Cases of Diabetes.*

4. *Fredericia, L. S., and Olsen, O. *Investigations on the Carbonic Acid Tension in the Alveolar Air of the Lungs in Acute Febrile Diseases.*
5. Siebeck, R. *The Functional Significance of the Respiratory Mechanics and Pulmonary Ventilation in Cardiac Dyspnea.*
6. Friberger, R., and Veiel, E. *The Pulse Form in Elastic Arteries.*
7. Friberger, R. *Rapidity of the Pulse Wave in Arteries with Palpable Wall Thickening.*
8. V. Noorden, C. *The Relations Between Urinary Acidity and Albuminuria.*

2. The report of this important piece of research in respiratory metabolism from the Carnegie Laboratory at Boston should be read in detail by all interested in the work.

4. Haldane and his collaborators have shown that under normal conditions the pulmonary ventilation is regulated chiefly by the carbonic acid tension in the respiratory centre. Deviations herefrom have hitherto been found in oxygen deficiency, after excessive muscular work, in cyanotic patients with heart diseases, in diabetics in coma or with untreated acidosis, and in uremia. Under these conditions the carbonic acid tension in the alveolar air has been found diminished. Fredricia and Olsen, from their investigation, conclude that this tension is frequently diminished also in patients with acute febrile diseases. Possibly this is associated with the slight acidosis which is often observed in febrile diseases.

[R. M. G.]

Il Policlinico.

July, 1912.

Medical Section.

1. Giaunuli, F. *Oedema from Ascending Neuritis.*
2. *Massini, L. *On the Syphilitic Nature of Morbid Processes in Various Regions.*
3. Preti, L. *Hyperplasia of the Hypophysis in Acromegaly.*

2. Massini tested for the Wassermann reaction in a great variety of conditions in all parts of the body or metasyphilitic. In the great majority of cases the which he thought might be syphilitic, parasyphilitic reaction was present. [L. D. C.]

Obituary.

ISAAC HULL PLATT, M.D.

Dr. Isaac Hull Platt, formerly of Brooklyn, N. Y., died at his residence at Runnemede, Wallingford, Penn., on August 14. He was born in Brooklyn on May 18, 1853, and was admitted to the bar before he studied medicine. He was graduated from the Long Island College Hospital in 1882, and then practised for a number of years in Brooklyn. Later he removed to Lakewood, N. J., where he devoted his attention more particularly to diseases of the lungs. About ten years ago he retired from practise and took up his residence on a large estate at Wallingford, near Philadelphia. In the later years of his life he engaged in literary work, his principal achievement in this line being a life of the poet Walt Whitman; he also enjoyed the intimacy of Dr. Howard H. Furness the Shakesperian authority, who was a neighbor of his and who died the day before Dr. Platt. Dr. Platt was a grandnephew of Commodore Isaac Hull, the famous commander of the frigate *Constitution*, the centennial anniversary of whose battle with the *Guerrière* occurred on Aug. 19. The house at Wallingford contains many trophies of the latter, and recently Dr. Platt transferred to the custody of the Navy Department at Washington a silver urn, a gold-hilted sword, and a pair of gold-mounted pistols which had belonged to him.

Miscellany.

DENTAL SUPERVISION OF SCHOOL-CHILDREN.

In a recent article Mr. Alphonso Irwin, of Camden, N. J., calls renewed attention to the present superiority of European countries in the provision of public attention to the teeth of school-children.

"In England the majority of parishes have arrangements whereby a salary is regularly paid to a dental practitioner who devotes more or less of his time to school dentistry. About $1500 a year is estimated to be the salary of such an official who undertakes no other work, while $5 per half day or $200 to $300 a year for regular service on certain days during the year is the agreement in other places. In Sweden there are more than twenty school dental clinics and in Germany there are more than forty cities having public school dental clinics free to needy children. In some cases these clinics are supported by private funds. In France in almost every town a dentist is attached to each secondary school."

With the present rapid development of popular interest in this subject, however, it is not likely that the large communities of the United States will long remain backward in provision for so important a matter of hygiene as adequate dental care, supervision, and education of school children.

ANCIENT TREATMENT OF THE GOUT.

A recent issue of the *Medical Press and Circular* quotes the following paragraphs about gout from an old book entitled, "Every Man his Own Doctor," written by the physician-in-ordinary to King Charles II of England, and published in 1662.

"The Gout is a most grievous pain in the Joynts, the cause is an acremonious humor proceeding from the Spermatick part of blood, and congealing in the Joynts, therefore very seldom Women, or Eunuches, or Children are ever troubled with it. It takes its various names from its scituation or place residing, if in the Hands or Fingers, it is called Chiragra, if in the Kness Genogra, if in the Feet Podagra, in the Hips Sciatica. For the Cure it is best Cured in Spring and Fall, although all diseases are then best cured; yet this is especially moved then, in youth it may be perfectly cured, but

in the Aged seldome so thoroughly, but it will sometimes give a visit to its old Masters especially if they eat plentifully or drink *French Wine* much, or sharp things."

"For the absolute Cure leave off all Wine, Beer and Ale for a season, and drink every night and morning for 14 days, half a pint at a time of our Cordial, and one of our corroborating pill every morning, after the pill stirring about much take the dyet drink warm, and at meals drink only Fair Water at meals constantly, but after you have used 30 of the corroborating pills you may leave them off at pleasure. For the pains in any part nothing is better than a poultess of milk, bread and marshmallows, applyed with some Saffron and put a little Oyl of Camomile to it, so put it to the pained place. Or you may use Oyl of Camomile, Marshmallows and Oyle of Turpentine each a like quantity, mixt with some Brandy-Wine so anointed by the Fyre. If pain be extream, use corroborating pills, that give ease in an hour's time."

The general principle of "every man his own doctor" is not one to be approved nowadays; yet the description of gout is amusing, and that of its cure even more so. One might well question the advisability of a half-pint of cordial every morning and evening; but surely the corroborating pill must have had marvelous efficacy. Unfortunately there were then no pure drug laws to compel the publication of its formula.

PRIMITIVE DENTISTRY.

IT is our custom perhaps to consider dentistry wholly a modern science, yet as a matter of fact its origin goes as far back into history as does the surgical craft of which it was once a part. Indeed, toothache probably quite as often as broken bones demanded relief at the hands of the primitive, prehistoric doctor. Dentistry is mentioned in the works of Hippocrates, Galen and Herodotus. Cicero quotes from the ancient laws of the twelve tables as evidence that it is legitimate to bury the dead without removing the gold from their teeth. Celsus, in the first century after Christ gives in his treatise of medicine many prescriptions for the treatment of toothache. One of the earliest English works in which dentistry is mentioned is a book on "Leechdom, Worteunning and Starcraft," in which the cause of dental caries is thus explained:

"Often the worst humor comes to the teeth from the head in such manner as (water) droppeth off a house upon a stone, and drilleth through the stone. Similarly the moisture of the head above falleth upon the teeth and then pierceth through them."

This curious statement is evidently associated with the medical theory of humors and of the pituitary nature of catarrh. The technic of modern dentistry is almost entirely a development of the past fifty years; but the foundations of the science, though laid in error like those of medicine, are equally ancient and honorable of origin.

APPOINTMENTS.

UNIVERSITY OF ABERDEEN.—*Ashley Watson Mackintosh, M.A., M.D.*, has been appointed regius professor of medicine at the University of Aberdeen, Scotland.

UNIVERSITY OF KANSAS.—*Dr. John Sundvall, of* Baltimore, has been appointed professor of anatomy, and *Mr. Lindsay S. Milne, M.B.*, of New York, professor of medicine, at the University of Kansas.

UNIVERSITY OF PITTSBURGH.—*Herbert Hays Bullard, A.B., A.M., Ph.D.*, has been appointed instructor in anatomy and neurology, and *Harry Ryerson Dicker, A.B., M.D.*, instructor in anatomy, at the University of Pittsburgh Medical School.

DR. S. R. KLEIN, of Valhalla, N. Y., has been appointed professor of Materia Medica at the Hahnemann Medical College at Chicago.

RECENT DEATHS.

DR. WILLIAM DANIEL LAMB, who died on Aug. 26 at Lawrence, Mass., was born in Charlton, Mass., in 1824. During the Civil War he served as surgeon at a Union hospital in Virginia.

DR. GEORGE WASHINGTON SIMPSON, who died on August 18 at Baltimore, Md., was born in 1841.

BOOKS AND PAMPHLETS RECEIVED.

Nervous and Mental Disease Monograph Series No. 12. Cerebellar Functions by Dr. Andre-Thomas of Paris.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, AUGUST 17, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	15	5
Chicago	590	220	Waltham	6	0
Philadelphia	—	—	Brookline	4	—
St. Louis	—	—	Chicopee	8	2
Baltimore	—	—	Gloucester	5	2
Cleveland	—	—	Medford	6	2
Buffalo	—	—	North Adams	11	2
Pittsburgh	—	—	Northampton	9	2
Cincinnati	—	—	Beverly	—	—
Milwaukee	—	—	Revere	3	1
Washington	—	—	Leominster	—	—
Providence	—	—	Attleboro	7	4
Boston	200	64	Westfield	4	0
Worcester	49	23	Peabody	—	—
Fall River	29	13	Melrose	2	0
Lowell	33	18	Woburn	2	2
Cambridge	23	4	Newburyport	4	—
New Bedford	32	15	Gardner	—	—
Lynn	18	8	Marlboro	—	—
Springfield	21	9	Clinton	5	1
Lawrence	—	—	Milford	—	—
Somerville	20	3	Adams	6	2
Holyoke	—	—	Framingham	—	—
Brockton	15	6	Weymouth	—	—
Malden	13	4	Watertown	4	2
Haverhill	14	2	Southbridge	3	—
Salem	18	7	Plymouth	—	—
Newton	8	2	Webster	5	1
Fitchburg	5	2	Methuen	—	—
Taunton	14	6	Wakefield	4	1
Everett	6	4	Arlington	—	—
Quincy	—	—	Greenfield	1	—
Chelsea	14	6	Winthrop	5	2

Original Articles.

THE USE OF LACTIC ACID SOURED MILK AND LACTIC ACID BACILLI IN PULMONARY TUBERCULOSIS.*

BY P. C. BARTLETT, M.D., AND C. V. MURPHY, M.D., RUTLAND, MASS.

So many excessive claims have been advanced of late in connection with the use of buttermilk and the different lactic acid ferments in the various branches of medicine, that some hesitancy is felt in approaching what is unfortunately a somewhat deservedly discredited subject. It is our feeling, however, based upon several years of observation and experience that somewhere between the original extreme claims of Metchnikoff and his followers on the one hand, and the flat denial of the ultra scientific on the other, rests a definite and well established field of usefulness.

A review of the already voluminous, contradictory and at times erratic literature of this much debated subject is apart from the purpose of the present paper. Every medical reader is familiar with its history, from its employment in ancient times as an essential element in the diet of certain races, and its popularization in 1908 at the hands of Metchnikoff and his pupils, to its recent industrial exploitation as a modern "elixir of life" in the hands of the milk dealer and at the soda fountain of the average drug store. Our purpose, therefore, is neither the support of extravagant claims nor the advancement of new experimental evidence, but the simple presentation of certain types of cases in which it has proved of undoubted value, the method of application and the means we have adopted for preparing it upon a relatively large scale in hospital practice, together with a brief consideration of the particular ferment employed, and our experience with other lactic acid cultures.

The essential problem in the treatment of pulmonary tuberculosis and its complications is a metabolic one. It is around this central point that its pathology finds expression, and it is towards the correction of these various perversions that our present hygienic and dietary efforts are directed. It follows, therefore, that any therapeutic agent which will aid, however slightly, in time of need, a failing anabolism, which will diminish the toxemia, or which will modify a troublesome and debilitating complication, is worthy of inclusion in the list of what is at best an all too slender armamentarium.

Every clinician who has concerned himself extensively with the care of tuberculous patients has been impressed with the prostrating effect of the obstinate diarrhea, alternating very often with intervals of constipation which is a not infrequent complication of well established, or advanced pulmonary tuberculosis. That the large percentage of these cases are functional only has been indicated by a somewhat extensive study of the feces in the laboratories of the Rutland State Sanatorium, and their toxic origin is strongly suggested. It is in connection with this type of individual, as well as in cases of actual tubercular enteritis that the employment of lactic acid soured milk has afforded the maximum benefit, both as a dietary measure in support of energy and in tissue repair, and as an agent favorably modifying the symptoms and controlling the diarrhea. Its range of usefulness extends over almost the entire field of gastrointestinal affections encountered in connection with our sanatorium work. That there are occasional cases unbenefited is not to be denied. The factors at work are not sufficiently clear at present to determine with certainty the suitability in every instance of a given individual, and it would even appear that there are types in which its employment is attended with symptoms which frankly contraindicate its use. Whilst small regard is entertained here for the old pernicious idea of so-called forced feeding in tuberculosis, the diet is a liberal one, and its protein composition necessarily high. Couple this fact with the common incidence of the necessity of restricted exercise, and we have a condition which, when considered in connection with the well-known strong natural tendency in this direction in tuberculosis, is fruitful of almost every variety of gastro-intestinal complaint.

In the course of our routine urine examinations, both in the case of each recently admitted patient, and those of longer residence in whom a repeated examination is indicated, the fact is elicited that the presence of varying degrees of indicanuria is the rule. Its probable intestinal autotoxemic origin is indicated by the associated increase in the coefficient of Bauman Morax' in a certain number of cases, in whom exhibition of a buttermlik diet was followed by a disappearance of the indican and a return to normal of the ethereal sulphates. Cases have been encountered in whom gastrointestinal disturbances was so severe as to render the usual restricted dietary measures of no avail. To the exclusion of all other food material certain of these individuals have subsisted upon buttermilk alone, for varying periods, with a degree of toleration not to be accorded to any other variety of food. It may be of interest here, in this connection as exemplifying the conditions above mentioned, to offer a résumé of the history of a case taken from the above category.

Mrs. L. was a moderately advanced case of tuberculosis upon entrance. She suffered from a persistent slight elevation of temperature during an interval of more than two months, when the temperature assumed a more irregular tendency with a range of from 97.6 to 103.4 degrees F. Coincident with the latter period were short alternating attacks of constipation and diarrhea. Marked nausea and gaseous distention of

* Read at the annual meeting of The Massachusetts Medical Society, June 11, 1912.

the intestines were present, accompanied by frequent and severe pain in the left lower abdomen attributable to the accumulated gas. The appetite was poor and the usual nourishment was refused.

Shortly after the acceleration of temperature and the onset of the above intestinal symptoms, lactic acid soured milk was prescribed and so well tolerated that for two weeks the patient took no other nourishment of any kind. Gradual improvement began, and continued until the symptoms had sufficiently abated to justify a return to the regular hospital light diet, supplemented by the buttermilk. Immediately following the cessation of buttermilk, however, the same gastrointestinal disturbances returned. The temperature eventually returned to normal and the general condition improved, until the patient registered a total gain in weight of 32 pounds during her stay.

Another instance which exemplifies the apparent dependence upon the buttermilk diet developed during the course of its employment is the case of Mr. J. Originally prescribed for the relief of certain intestinal symptoms, Mr. J. has been taking the lactic acid milk for several months past. He complains of very little gastrointestinal disturbances so long as this treatment is continued, but upon cessation for a few days only, diarrhea and general discomfort appear.

It must be frankly admitted, however, that all cases are not attended with the degree of success that the above illustrative cases might suggest. Indeed, as previously indicated, there are patients for whom a continued employment of a buttermilk diet might be conducive of positive harm. Whilst their character is not clearly determined at present, cases of hyperchlorhydria may be mentioned as a type belonging to this unfavorable class.

However, failure is recorded even in individuals not very different from the illustrative cases recorded above. For example Dr. T.—a dentist—has suffered from persistent diarrhea, with flatulence for two or three months. The buttermilk diet prescribed at this juncture was attended with complete failure, and after a fair trial was abandoned in favor of an autogenous Bacillus Coli Communis Vaccine. Improvement began as soon as the size of the dose was successfully regulated, and, under the continued use of this treatment, the symptoms remained controlled.

In laryngeal tuberculosis, and particularly in that dreaded form characterized by the involvement of the epigolittis, deglutition is often accomplished with considerable difficulty and accompanied by severe pain. Solid food is commonly interdicted, and an exclusive liquid and soft diet required. Here the lactic acid soured milk is frequently a grateful change from the dietary monotony of ordinary milk, which constitutes the essential element of such a diet; and it is doubly acceptable to the patient through the mild local stimulating action of the lactic acid contained.

That a liberal percentage of our moderately advanced and advanced cases suffers from chronic mucous gastritis is indicated both clinically and by a relatively large number of laboratory reports. The lactic acid element may here account at least in part, for the beneficial results obtained, but its application is by no means restricted to those individuals in whom complications is a factor, for the fact of its representing the full butter fat content of whole milk gives it a decided dietary usefulness as well. There are patients in whom the constipating tendency of ordinary milk either limits its employment, or wholly forbids its use, and there are many to whom its taste becomes unbearable after a time. Here the buttermilk may be substituted, in whole or in part, provided there are no contraindications to its use.

What of the patient, however, who is intolerant of the taste of buttermilk, and yet in whose case the application of lactic acid therapy is desired? It was formerly our babit here to prescribe one of the preparations of lactic acid bacilli tablets, widely advertised. Among their numerous diadvantages, however, are their high cost and the fact that the number of contained lactic acid bacilli alive and capable of subsequent multiplication in a suitable environment is ridiculously small. Indeed, during the course of certain experiments carried out in the sanatorium laboratories in connection with the various market preparations, it was a common experience to find a very large percentage entirely sterile, when macerated in normal saline and incubated at suitable temperatures, in various media best adapted to their growth. At the suggestion of one of the writers ordinary skimmed milk cultures were substituted for the tablets, according to the following plan. After substituting sterile corks for the ordinary cotton plugs, the labels are marked with a future date — as indicating the time when the contained organisms might be assumed to have produced sufficient acid to affect their viability, and when the cultures, therefore, are to be renewed. The six ounce bottles containing the cultures are sent from the laboratory to the pharmacy icechest, and from there distributed to the various wards as required. Here the cultures are kept on ice, and for use a dram or more of the buttermilk is stirred into a few ounces of solution of milk sugar, care being exercised to avoid contamination of the stock supply. The ingestion is thus insured in a suitable carbohydrate medium—an essential accompaniment' lacking in the case of the tablets of many more live, active lactic acid bacilli than a dozen tablets could under the most favorable circumstances supply. The taste of the mixture is at most no more objectionable than that of the average prescription, in which a sirupy menstrum is employed.

Mention has been made in the preceding para-

graph of the preparation in the laboratory of the cultures employed. If there is any lesson which a three years' experience has clearly emphasized it is the unqualified fact that only in the hands of a competent bacteriologist, and in an adequate laboratory, is it practicable to carry out upon a hospital scale, and particularly in an institution of this character, the treatment we have outlined. During our early experience when the requisite supply was considerably smaller, the actual starter only was prepared in the laboratory, and the succeeding details of buttermilk preparation left to the worker in charge of the Centre Diet Kitchen, from where the larger percentage of trays for the bed patients are sent out. The milk was pasteurized in two quart milk bottles by placing in lukewarm water contained in saucepans of large diameter and slowly raising the water to the boiling point upon the kitchen range. The milk was inoculated after cooling, with a portion of the original starter, and incubated in a warm place over night. On the second and succeeding nights a cupful or more of the resulting buttermilk replaced the laboratory starter and this procedure was continued for a four or five days' interval, after which a regular starter was again employed. It must be here admitted that the unfavorable character of the lactic acid bacillus was in part responsible for the unsatisfactory nature of the results obtained. The resulting buttermilk was frequently inferior and whole lots were commonly discarded because of the overgrowth of various resistant organisms which escaped death during pasteurization, and which were a part of the original bacterial content of the milk employed. At times the milk actually exhibited a fecal odor due to the overgrowth of certain members of the colon group. Examinations of samples of the buttermilk used for perpetuating the process often failed to show the presence of any of the milksouring organisms contained in the original starter, and even after the use of a daily pure culture as a starter and lengthening of the period of pasteurization to as much as two hours, the results were not greatly improved. Substitution of various makes of so-called "lactic acid bacilli tablets" gave even worse results. It may be readily surmised that the nauseating effect of a single glassful of milk bearing a fecal odor and thickened as a result of early peptonization by one of the spore bearers of the liquefying group was sufficient to prejudice patient and doctor against any further application of such a disgusting diet.

It may be profitable at this juncture, because of its important practical bearing upon the subject of the home preparation of buttermilk, to indicate briefly the principal factors which made for failure in the pursuance of the foregoing regime.

The factor of first and highest importance, as has been previously mentioned, was the absence of a biologically active culture of the milk-souring bacillus, capable of producing at room temperature,—70 degrees F.—when implanted in reasonably small numbers, in a milk medium, a growth of sufficient activity to inhibit by the free production of lactic acid the development of such organisms as are originally present in the milk, and escape death during subsequent pasteurization. This is a requirement to which very few strains of lactic acid bacilli can conform. It is our opinion and has been our experience, that only through the process of subculturing for a considerable period in a milk medium at the required temperature, can a given strain of lactic acid bacilli, carefully selected at the beginning, be educated to the point of producing a sufficiently free growth, accompanied by an adequate liberation of lactic acid, for employment in the routine production of buttermilk. Repeated strains obtained through the various commercial sources have failed of utility because of their noticeable feebleness of development.

The possession, therefore, of a strain of lactic-acid-producing organisms conforming to the above requirements may be regarded as the *sine qua non* of successful buttermilk preparation. That there is a wide variation among the various members of the so-called "Lactic acid group" in biological activity as well as in morphological and in other characteristics is a fact familiar to every agricultural bacteriologist. The ability of the various spore-bearing peptonizers, and even certain members of the colon group, to resist active pasteurization, need not be emphasized, but the fact is less commonly recognized that occasional lactic acid organisms may remain viable after an exposure to 166 degrees F. for as long as 30 minutes', and subsequently give rise either by their symbiotic development in connection with the lactic strain introduced, or by their more rapid individual development to a form of lactic acid fermentation differing materially and unfavorably from the anticipated variety. This experience has been repeatedly if not commonly encountered in our earliest work, and from the foregoing it will readily appear that simple pasteurization, however conscientious, cannot be depended upon to insure constant exemption from the multiplication of undesirable organisms. The peptonizers invariably escape destruction, and whilst present, as a rule, in comparatively small numbers, their growth depends only upon a temperature unfavorable to the free development of the lactic acid bacteria, —from 75 to 98.6 degrees F. or below 60 degrees F.,—and favorable to their own activity. Indeed this very matter of temperature variation during the period of incubation is second only in importance to the character of the "starter" employed.

The usual directions are to place the milk in a warm place over night, following inoculation. The diet kitchen in which our buttermilk was formerly incubated is steamheated and

equipped with a range in which the fire is allowed to smolder during the night, so that the thermal conditions may be regarded as average ones. The variation by actual determination was considerable,—60 degrees F. and 80 degrees F. representing the two extremes,—as influenced largely by the weather conditions and the exact spot selected for incubation. Now the universal souring of milk as a matter of daily and domestic occurrence is largely dependent upon its common exposure to a temperature approaching 70 degrees F., since the number of lactic acid bacteria present in recent milk is relatively small, as compared with the total bacterial content.[4] As low as 10 per cent. is given as an authoritative figure by recent experimenters. When the temperature at which milk is stored exhibits any considerable variation in either direction we encounter the possibility of a preponderance of either the peptonizing, alkaline, neutral or colon group, dependent upon the degree and direction of the variation.

If any doubt is entertained in this respect the simple experiment of incubating aliquot parts of a fresh sample of milk, one each, in the thermostat, in the gelatine incubator, in a cool room and in the ice-chest will afford a convincing illustration.

Briefly then, the factors which render impracticable the preparation of large quantities of buttermilk under what may be termed nome conditions may be summarized as follows:

First and of probably the highest importance is the difficulty in obtaining a reliable strain to be used as a starter.

Second.—The fact that certain undesirable organisms,—even lactic-acid producers, giving rise to an unsightly buttermilk of unpleasant taste; may, under favorable temperature conditions, multiply at the expense of the bacteria introduced.

Third.—The difficulty of maintaining in the home, a fairly constant temperature of about 70 degrees F.

Fourth.—The fact, not previously mentioned, that when the at-present-rather-extensively-employed Bulgarian bacillus is used a temperature close to 98.6 degrees F. is necessary, and that even when the milk is successfully soured by this bacillus, the resulting excessive acidity, and the almost sirupy, sticky consistency of the milk, is obnoxious to most patients. If employed in connection with the Streptococcus Lebenis, the latter fails to actively develop at the temperature required for incubation of the Bacillus Bulgaricus, and if exposure to 70 degrees F. is employed, the streptococcus becomes the principal factor, the Bulgarian bacillus developing feebly, or not at all. As a matter of fact, in actual practice the Streptococcus Lebenis soon dies out, leaving behind its more resistant companion.

For the routine handling of stock cultures in the laboratory three varieties of containers are necessary, fresh separator-skimmed-milk being the medium employed. At least four and preferably five days' sterilization by the fractional method, with a daily exposure of 45 minutes, is essential to escape subsequent overgrowth by the spores of extremely resistant organisms originally present in the milk, with all the troublesome contaminations which such occurrences entail. They may fail to develop during storage of the media in the ice-chest, but appear upon incubation, and possibly spoil an entire lot of buttermilk. A safe guide, useful in our experience, is the caramelization of the milk sugar, which only occurs, as a rule, after long and repeated sterilization at 212 degrees F.—usually upon the fourth or fifth day. The media is prepared, according to the above directions, in ordinary culture tubes, in four ounce round prescription bottles having a mouth of medium diameter and in flasks similar to those used for the buttermilk.

The culture tubes serve to keep alive and perpetuate the bacterium in the laboratory, and are transplanted each day—several being kept in reserve. The contents of the tube of least recent date, after emulsifying with a little sterile normal saline to facilitate pouring, are distributed among as many flasks and bottles as may be required for use on the wards in the case of the latter—or for starting the next day's buttermilk. These details are carried out late in the afternoon and culture tube, flasks and bottles set away in the incubator over night. In the morning the milk will be found to have reached the desired degree of thickening, and all containers are transferred to the ice-chest to prevent further development. Were the cultures kept at incubator, at room temperature, sufficient acid to kill off the specific bacterium would soon be elaborated. Indeed a refrigerator may be regarded as absolutely indispensible to the successful operation of this or any similar bacteriological plan.

It will readily appear, that to guard against contamination of the milk, the greatest care is imperative in a laboratory where the handling of typhoid bacilli, and all sorts of pathogenic organisms and pathological material is a part of the day's routine.

For the greater security the rule is observed in dealing with the lactic acid organisms of having the table free at the time from all other cultures, and distinctive sized culture tubes, as well as a special platinum inoculating needle devoted exclusively to this purpose, are employed. Prior to fractional sterilization the stock culture flasks after tubing and plugging are covered over, as shown in the photograph, with a square of cotton cloth, secured by means of a rubber band. This precaution has been found useful in preventing the entrance during storage or during subsequent incubation of extraneous bacteria or troublesome spores. In the case of the culture bottles the necks and stoppers at the time of inoculation, after flaming

the cotton, are secured by means of an ordinary paper prescription-bottle cap.

For the information of the prospective worker with this particular strain of bacteria,—designated as "The Bacterium Acid Lactici, Medalia" in the Sanatorium Laboratories,—a word in conclusion is offered regarding a few of its biological and morphological characteristics. It grows satisfactorily but not abundantly on the usual media, ferments carbohydrates with the production of acidity, is gram positive in its staining reaction, is nonmotile and does not, of course, form spores. In milk, coagulation occurs somewhat earlier than usual—in the neighborhood of 0.6 plus per cent; and above 0.7 plus per cent. an undesirable breaking up of the original coagulum is apt to result. On agar and in 2 per cent. dextrose-buillon, development is fairly active; and through a little overincubation, or a brief sojourn outside the refrigerator, the production of a fatal degree of acidity easily occurs. The simple expedient of adding 1 per cent. precipitated calcium carbonate to the glucose-bouillon affords the most useful medium available for storage of the bacterium. It is identical with the method of Hiss[4] which we employ in dealing with liquid cultures of the pneumococcus, and depends upon the neutralization of the nascent acid by the alkaline carbonate.

An important detail in connection with the organism in question is its pleomorphism, which is so marked at times as to present to the uninitiated the idea of contamination. The usual form is that of a short diplobacillus with somewhat tapering extremities, suggesting at a casual glance the morphology of extreme types of the pneumococcus. The less common shape is a frank bacillus, from twice to several times the size of the above, in length and diameter. At the time of our first acquaintance with the present strain it was thought that we might be dealing with two closely related organisms, but subsequent carefully repeated plating established at once its unity and its pleomorphism.

No doubt there are many other lactic acid bacteria which are proving equally as active in the hands of other investigators. It may be remarked in connection with the present report that nothing has been said with regard to the practical bacteriological proof of the establishment as a more or less persistent inhabitant of the intestinal mucosa of the bacteria in question but it must not be inferred that evidence of such occurrence is altogether lacking. Work has been undertaken along these lines, and although the present results are too slight for emphasis at this time it is hoped that at a future date something definite may be offered.

Fifth.—In all hospitals and particularly in those for the care of the tuberculous, the opportunity for infection of the milk subsequent to pasteurization, with pathogenic bacteria—tubercle bacilli from tuberculous employees, diphtheria bacilli, possible typhoid carriers, the streptococci of epidemic sore throat, etc.—at the hands of individuals without bacteriological training, although admittedly slight, is by no means an inconsiderable one.

Having reviewed the difficulties in the way of buttermilk preparation, and the reasons for our transferring the entire process from the diet kitchen to the laboratory, an outline may be offered of the method employed at the Rutland State Sanatorium during the past three years.

We owe free acknowledgment at this point to the generosity of Dr. Leon S. Medalia, from whom our present most extensively-used lactic acid bacterium was obtained.

After numerous experiments with various strains of so called lactic acid bacteria, obtained from various commercial and laboratory sources, as well as isolated from different specimens of soured milk and dairy buttermilk, the Medalia Bacterium[5] remains by all odds the most generally satisfactory one encountered to date. Its superiority may be accounted for, at least in part, by the fact that it has been passed through innumerable milk subcultures, during a period of more than three years.

Incubated over night at 70 degrees F. in a whole milk medium, it produces a smooth buttermilk, of creamy consistency, and moderately acid taste. The average acidity of the finished product, in terms of lactic acid as we have determined by frequent analysis, is 0.6077 per cent. If a more sharply acid content is desirable incubation may be extended a few hours further, but care must be exercised to avoid the production of sufficient acid to affect the viability of the specific bacterium contained. It is the habit of the nurses when dispensing the beverage to pour it from the containing flask into a deep aluminum cup and churn to a fine emulsion with an egg beater. This simple expedient insures the breaking up of the coarser particles, and an exceedingly smooth, creamy buttermilk results.

To guard against possible loss of the organism stock cultures of skimmed-milk, azo-litmin-gelatin, calcium carbonate-dextrose-bouillon and gelatin-glucose-agar are stored in the ice-chest after the attainment of a free development; and transplanted at intervals of about every two weeks. For the practical purposes of buttermilk production a milk medium alone, in four main varieties of containers, is employed. Since we average more than six gallons of buttermilk daily, from a half liter to a liter of milk culture is necessary to carry out the inoculation of the various flasks. Two sets of 500-c.c. flask-shaped gas bottles are in constant use.

In the Centre Diet Kitchen the empty flasks, after subsequent addition of about 25 c.c. of ammonia, and rinsing in boiling water, are filled in the early forenoon with fresh whole milk to a degree which admits of comfortable shaking after subsequent addition of about 25 c.c. of fluid. The flasks are then stoppered snugly with rolled surgical-absorbent-cotton plugs, and

carried on a metal tray to the laboratories where the previous day's accumulation, having been converted over night into butter-milk, awaits removal to the ice-chest. The flasks are immediately transferred to the steam sterilizer where they are subjected to a temperature of 212 degrees F. for 1 1-2 hours. The actual preparatory sterilization of the milk needs no apology in view of the facts already outlined. The taste of the finished buttermilk, contrary to the general contention, is but slightly affected and there is much satisfaction in the knowledge that prior to inoculation the milk contains in the way of live bacteria only a few spore-bearing organisms, which probably succumb to the heightened acidity as soon as the lactic acid content approaches the neighborhood of 0.60 per cent.

After sterilization the milk is cooled as rapidly as possible to about 70 degrees F., and set aside at that temperature, protected from dust by covering over with clean towels until about 5 o'clock in the afternoon. The cotton plug of each flask is then burned off, removed and about 25 c.c. of a pure 24 hours' culture of the lactic organism introduced. A sterile cork stopper is inserted, the contents thoroughly shaken and the cotton plug replaced. The cork stopper is thus carried from one container to another, saving the cotton from soiling during the mixing process. The usual bacteriological precautions must of course be carefully observed. The flasks are then stored, covered over as previously, in a protected place in the inner chemical laboratory where it has been found that a very constant temperature of about 70 degrees F. is maintained. About 8 o'clock on the following morning the milk will be found to have thickened into an even almost solid coagulum, there being no perceptible whey. The flasks are again actively agitated when a thick, even creamy emulsion results. The finished buttermilk is then transferred at once to the diet kitchen refrigerators, and thoroughly chilled before use. A word regarding the matter of containers may be useful at this point. Formerly it was our habit to employ empty bottles of from 500-c.c. to a liter capacity, of whatever character available, provided they fitted into the sterilizers. It was found that breakage during sterilization was an altogether too common experience, and a supply of 500-c.c. flasks of resistant material, known to the chemist as gas bottles, was obtained. These serve an additional purpose as will presently appear.

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TWO CASES OF DIVERTICULUM OF THE BLADDER TREATED BY OPERATION.*

BY ARTHUR L. CHUTE, M.D., BOSTON.

Within the past two years I have had an opportunity to operate upon two bladder diverticula that I feel belong to the same general type. A study of these cases brought out several points that have been of interest to me.

The first patient was a man of thirty-four who had suffered from several attacks of gonorrhea, the first about twelve years before. Following his gonorrhea he developed a tight stricture of the deep urethra, which, however, had been fully dilated at the time I first saw him in the spring of 1910. This patient had a very turbid urine that was slightly foul. It contained pus in moderate amount and myriads of colon bacilli. Besides bladder washings, he had been given a long and thorough treatment with vaccines, but without appreciable result. It was found that his bladder contained five and one-half ounces of residual urine. His reflexes were normal.

A cystoscopic examination showed an opening just to the outside of his left ureter that was about the size of an ordinary lead pencil. It had the characteristic appearance of the opening of a diverticulum. Both ureters were catheterized and gave a good amount of normal urine. A radiograph with a styletted catheter coiled in the diverticulum gave a rough idea of its size and position. (Fig. I.)

The man had little frequency and only occasionally slight pain in urination. As he was much concerned about his long-continued turbid urine, and as I felt that the turbid residual was a menace to his kidneys, operation was decided upon.

October 5, 1910, an incision was made through his left rectus, from just above the pubes to a point well up toward the umbilicus. Previous to operation the bladder was washed thoroughly. A catheter was passed well up the left ureter, and another ureter catheter coiled up in the diverticulum with the idea that it would help to define its boundaries. A retention catheter was passed into the bladder and the bladder distended with air. The abdominal incision was carried down to the perivesical space just above the symphisis and the peritoneum peeled back from the bladder. This separation of the peritoneum was quite extensive, being carried well to the right of the median line behind. A mass was found to the left of the bladder which was about the size of a large egg. (Figs. II and III.) It was covered with a layer of fat that was denser than that covering the bladder. This mass was gradually dissected free everywhere but below. Above, certain muscular fibres ran from the bladder wall, but were soon lost on the surface of the diverticulum. I was unable to identify the opening of the diverticulum into the

* Read before the annual meeting of the American Urological Association, New York, April 2, 1912.

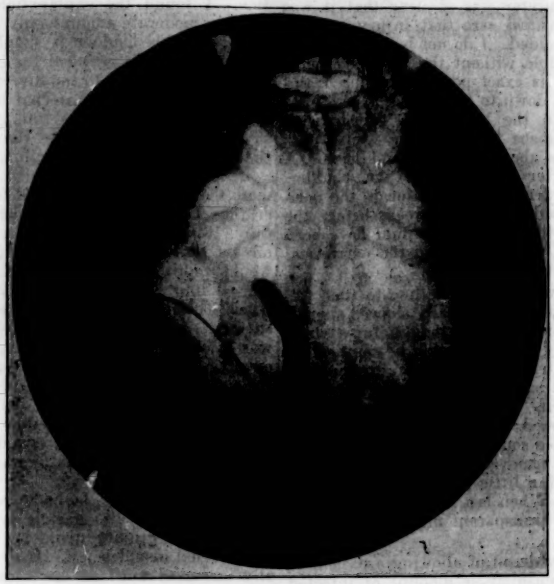


Fig. I.

bladder as the ureter catheter I had coiled in it had slipped out. I therefore opened the diverticulum and, with the opening in the bladder located, was able to dissect it free below, so that I had a sac with a small neck at the point of

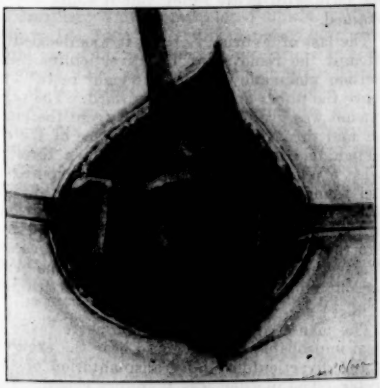


Fig. II.

communication with the bladder. The base of the diverticulum was at least an inch lower than the opening into the bladder, and apparently somewhat lower than the floor of the bladder itself. The neck was tied, the sac cut and the



Fig. III.

bladder wall brought together with catgut in two layers over the stump. The catheter in the left ureter was of the greatest help in placing the

sutures. The ureter was so near that it was only by the greatest care that injury or compression was avoided. I do not believe it would have been possible without the ureter catheter to have shown its exact position. Tube drainage was carried down to the bottom of the perivesical space on the left and a rubber wick placed in the space behind. The wound was closed in layers about the tube and wick. A retention catheter was left in the bladder. There was considerable suppuration in the perivesical space, and it was five weeks before the wound was solidly healed. It would have been wiser, I believe, to have drained the perivesical space from below.

This patient was seen from time to time following operation, and he usually showed a small amount of turbid residual, though for a short time immediately after operation he emptied his bladder completely. Cystoscopic examination showed the wall smooth at the point where the opening had been. As his small residual of turbid urine persisted, and as there was a place where the tip of a sound caught at the entrance to his bladder, I removed in the fall of 1911 with a urethral punch a little piece of the bar at his bladder outlet. When last seen, March 9, 1912, this man had a transparent urine containing a few fine shreds.

In spite of my dread of allowing a patient to go on with a considerable amount of infected residual, I felt at times that perhaps I had subjected this patient to an unjustifiably severe operation, considering that he was having practically no subjective symptoms; any misgivings that I had on this score were, however, dispelled by my second case, which illustrated what I believe is simply a more advanced stage of the same condition.

This patient was a man fifty-nine years old. I did a perineal prostatectomy for him in 1908, removing rather small lateral lobes and a pedicled intravesical obstruction as large as a small olive. The latter had acted as a ball valve, and he had been absolutely dependent upon a catheter for some time previous to operation. After operation he passed urine voluntarily, but I found that he had, on several occasions, a residual of from seven to twelve ounces. This I attributed to an atonic bladder that I expected would in time regain its contractility. At the time of operation his urine was purulent, of low gravity, albuminous and low in solids, the picture of a hydronephritis. I hoped that the relief of his back pressure would better his renal condition.

Following operation this man was very comfortable for two and a half years. He then had an attack of acute cystitis with a very foul urine. He was found to have a residual of eight ounces.

Cystoscopy showed what I took to be an intravesical projection on his left, near his bladder outlet; my notes stated however that I could find no hypertrophied muscle bundles or trabeculation. I found the explanation of this later. When a moderate amount only of fluid was injected into his bladder it simply filled the diverticulum. This crowded the bladder forward so that the entrance to the diverticulum was immediately behind the internal meatus, and my cystoscope went directly into it. The mass I saw on the left was a part of the septum between the bladder and the diverticulum.

Believing I had to do with an intravesical mass that I had overlooked at the previous operation, I opened his bladder suprapubically in July, 1910. There was no mass, but low down on his right I found a circular opening that would admit the tip of my forefinger. This opened into a considerable cavity, the floor of which looked wholly different from the bladder surface. Instead of being red and velvety it was smooth and pearly white. I dilated the opening, put a tube into the cavity and brought the end out the suprapubic incision. The suprapubic wound closed slowly. In October, 1910, this man was free from subjective symptoms, but showed a slightly turbid residual of nine and one-half ounces, for which he was advised to use the catheter once a day.

In December, 1910, he had a recurrence of his bladder distress, also gastric symptoms which, with his low gravity urine low in solids, suggested renal insufficiency. His frequency gradually increased until on one occasion he had to get up twelve times during the night to urinate. He was not successful with the use of a catheter, though it could sometimes be passed directly into his diverticulum. On these occasions it went in ten inches and drained a large amount of slime and crystalline detritus. On one occasion a soft rubber catheter, inserted through the urethra, was tied into the diverticulum for a few days with great relief, but it could not be retained.

The last of February, 1911, it was decided to attempt the removal of his diverticulum. An incision was made through the right rectus just above the pubes and carried upward. The peritoneum was gradually separated from the bladder and then from the upper surface of the diverticulum; in doing this it was torn through twice. When the diverticulum was exposed it was found that it was very large and that it partially undermined the bladder. The right ureter opened into the diverticulum, and not into the bladder. There was only a suggestion of a few muscle bundles running from the bladder out on to the surface of the diverticulum. (Fig. IV.)

The man's condition was such as to make it seem improbable that he could bear the excision of the diverticulum and transplantation of the ureter. The incision was therefore closed. For several days following operation this man's condition was critical; he had vomiting, hiccough, distention and a very scanty urine.

As we had accomplished nothing in the way of bettering this man's condition I reopened his



Fig. IV.

incision two weeks later, cutting part way across the right rectus. The bladder was opened on its right side, and with a thermo-cautery I made three radiating incisions in the circular septum that separated the bladder and diverticulum. This enlarged considerably the opening between the cavities. The wound closed slowly. When last seen, in July, 1911, this man had been able by the use of his catheter and irrigations to keep his urine much cleaner. He had little in the way of discomfort referred to his bladder.

The general subject of diverticulum of the bladder has been considered relatively recently in papers by Young, Von Eberts, Fischer and others, and I shall not consider the subject in general, but only the type presented by these two cases. This type, I believe, differs essentially from the clearly congenital double bladders, on the one hand, and also from the little herniæ of the bladder that are directly due to pressure and usually arise near the vertex.

Diverticula, such as those in the reported cases in my opinion cannot strictly be called congenital yet I believe they always have their origin in the little pits that one sees from time to time just to the outside of the ureteric orifice and which are undoubtedly faults or anomalies in the development of the bladder. I have seen these pits on a number of occasions. Usually they have been unilateral, but a man whom I had under my care about a year ago showed little openings on both sides which would admit a ureter catheter for about a quarter of an inch.

I have been unable to find a definite explanation for these little openings but, arising as they do so near the ureter, it seems probable that they must represent anomalies in its early development. Embryologically buds from the fetal ureter, which might easily lead to such little pockets, are supposed only to arise to the inner side of the ureter, while these are seen on the outer side.

Many writers note the frequency with which diverticula appear just outside the ureter, but I have seen no explanation offered for this. I believe the most probable explanation lies in these little congenital pits or pockets which probably represent some anomaly in the very early development of the ureter. These little pockets are not confined to males. Within a short time I saw one in a woman. The presence of one of these little pockets is not in itself sufficient to bring about the formation of a diverticulum; it simply predisposes. There must be the determining agent as well, which is an increase of the intravesical pressure. This may be due to obstruction at the bladder outlet, or anywhere along the urethra, or I believe that a sharp cystitis, attended with violent bladder spasms, may be sufficient.

Given the congenital defect in the bladder wall which, judging from the one case I have investigated, goes pretty well through the muscular layer, and we have determined the point where there will be a hernial protrusion if the intravesical tension is raised beyond a certain point. Once the protrusion has begun the process will be progressive because of the lack of contractility of the wall of the diverticulum.

In certain other respects too these diverticula situated near the ureteric orifice deserve special consideration. They present dangers that do not apply to those that are differently situated.

With the increase in size of such diverticula there is a tendency for the bladder surface near the diverticulum to be everted or drawn into it and to carry with it the opening of the ureter. This, I believe, must always be attended sooner or later with hydronephritis on the side involved, and eventually with very serious crippling, if not destruction, of that kidney. If there is not this pulling of the ureteric orifice into the diverticulum the pressure of the enlarging diverticulum against the ureter will interfere with the drainage and predispose to ascending infection. As these diverticula increase in size they tend at times to burrow toward the bladder outlet and by pressure to interfere mechanically with its ability to empty itself. The more the bladder has to work to empty itself the greater will be the pressure in the diverticulum and the faster it will increase in size. I do not know that this type of diverticulum shows any particular susceptibility to the formation of calculi or to malignant degeneration.

Usually these deeply placed diverticula will not present symptoms such time as they are in-

fected but with a certain amount of stagnant urine infection is bound to come sooner or later. Then even the symptoms will not often be distinctive but will be those of bladder infection in general. The finding of any considerable amount of residual urine in a young man and a considerable number of these cases have appeared in the thirties will be highly suggestive. The actual diagnosis will usually be made by cystoscopy and the recognition of a characteristic round opening just outside a ureter. A graphic method showing the approximate size of a diverticulum of this sort is by means of a radiograph after one has coiled a styletted ureter catheter in the diverticulum. This method, I believe, was first shown by Brown and Osgood. Filling the diverticulum with collargol is said to give good results though I have not used it.

Once a diagnosis of this condition has been made I believe one can advise nothing but the excision of the diverticulum if the patient's condition will warrant it. Palliation by means of the catheter has not usually been a success.

Fischer in his article says the mortality in forty-eight cases collected from the literature was 66.7 per cent. He simply states that some of these cases were treated by means of operation and some without it. In six cases however that were treated by primary or secondary resection he states all recovered and were well.

Von Eberts collected eleven cases of excision of diverticula: of these eight were cured, two had fistulæ at the time they were reported, one died. He rightly says that "the age at which these cases occur imposes a grave responsibility upon the surgeon," for, as stated above, many of these are in young men.

We have two general methods of excision. Young has reported successes by working from inside the bladder. Von Eberts operated successfully by a combined method. He approached the diverticulum by the extraperitoneal route and separated it extraperitoneally, but was guided in his dissection by a finger introduced into the diverticulum through a suprapubic incision. I cannot help feeling that the extraperitoneal operation, when it can be carried out is the more surgical procedure When this method is adopted a catheter should be put in the ureter on the affected side to serve as a protection against injury to the ureter when closing the opening in the bladder wall.

Young has devised a very ingenious flap operation to allow him to replace the ureter in the bladder, without resection and transplantation, when it has been dragged out into the diverticulum. It was successful in the case in which he used it but I should suppose it would hardly be practicable if there was much displacement of the ureteric orifice into the diverticulum.

When the ureter cannot be brought into the bladder by Young's manœuvre it will be necessary to resect it and reimplant it in the bladder. If one can be sure there is a good kidney on the well side and is in doubt as to the condition of the one opening into the diverticulum, I believe the preliminary removal of the kidney on the side of the diverticulum should be considered and would probably be a conservation measure. With a ureter opening into a diverticulum it will probably rarely be possible to get the urine directly from that side by means of catheterizing that ureter. However, it should be possible to occlude the well ureter sufficiently to get a pretty accurate idea of the value of the kidney on the diseased side.

Both Young and Von Eberts employed drainage of the perivesical space by means of a tube brought out through the perineum. They both, however, state that they believe that this is not necessary. I did not employ drainage through the perineum, and had a considerable suppuration in the perivesical tissue; I believe that perineal drainage is a wise precaution, considering that there will almost invariably be some infection and the great disadvantage of "uphill" drainage in such a place.

In cases in which, like my second, it seems improbable that a patient can withstand so severe an operation as the excision of one of the deep-lying diverticula is bound to be, our only recourse is to make the opening between the bladder and diverticulum as free as possible. This can be done by cutting the septum with scissors or a thermo-cautery through a suprapubic wound. It is merely palliative.

I would especially call attention to the probable cause of this sort of diverticulum: the little defects in the bladder wall near the ureteric orifices; also to the importance of recognizing these diverticula early and excising them before the neighboring ureter has been drawn into the sac, or the sac has become of such size as to make its excision unnecessarily difficult.

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THE PRESENT STATUS OF SALVARSAN.*

BY ABNER POST, M.D., BOSTON.

WHEN one speaks of the present status it allows the inference that there has been a change in opinion and that there will be further change in the future. It is true that salvarsan is not quite the wonderful drug that we were led to expect. It does not cure syphilis by a single massive dose.

It is also true that the repetition of the dose does not make a dangerous race of sprochetæ and a worse form of disease.

But the tales first told of 606, that it causes symptoms to disappear in an incredibly short space of time are true. It acts with incredible rapidity on the moist lesions of syphilis—those

* Read at the annual meeting of The Massachusetts Medical Society, June 12, 1912.

which are particularly liable to transmit the disease. Many of the early accounts of the drug were illustrated by photographs of various lesions taken before and after the administration of the drug. Pictures could still be taken which show a striking improvement after the drug, but unfortunately all these patients do not stay cured.

Salvarsan heals cases which mercury has failed to cure, but not all of these stay healed. These cases comprise the early malignant cases, in which the lesions have a tertiary character in the time appropriate for early secondary symptoms.

With the recognition that a single dose does not always cure and that repeated doses may be given has come the tendency toward smaller repeated doses rather than one massive dose.

At first salvarsan was given subcutaneously. This was soon changed to an intramuscular injection. This proved a very painful method like the first, and required usually the administration of morphine to render the pain endurable. Moreover, the drug was not always absorbed but remained encysted for weeks and months. Sometimes it acted as an actual escarotic and a chemical slough resulted which separated very slowly and which it was necessary sometimes to dissect out before healing took place. The administration by intravenous injection of a more dilute solution was then advised and that method is the one now generally, but not universally, used. The yellow powder is first dissolved in 100 c.c. of sterile water or normal salt solution—it is then precipitated by the addition of a solution of sodium hydrate which is still further added drop by drop until a clear alkaline solution is formed. To this solution is still further added 200 c.c. of salt solution and after filtering the clear yellow liquid of 300 c.c. is ready for use. All the utensils used should be sterilized. The same aseptic precautions should be carried out as for any serious operation. The solution should be neutral or faintly alkaline. A hospital operating room is the proper place for its administration though it may of course be given at a private house just as any operation may be done in a private house,—and I cannot say that a doctor's office is a proper place for its ordinary administration.

The administration is likely to be followed by unpleasant symptoms—a rise of from one to five degrees in temperature, a decided chill, vomiting and diarrhea may or may not follow. It has been found that these symptoms are less likely to follow if the water used has been freshly sterilized. This precaution certainly has some effect in diminishing the unpleasant after effects but the size of the dose is also to be taken into account.

These immediate effects are transient, usually they are over after from four to six hours, but occasionally a diarrhea persists for a few days. The effects are by no means universal. A very large proportion of patients escape them entirely, but very occasionally they are severe—sufficiently severe to demonstrate the fact that one is dealing with a powerful drug which must not be administered rashly or without discrimination. It was at first advised to retain patients in hospital or in bed for several days. A few hours are now considered sufficient.

But there are more serious allegations against the drug than mere transient discomfort. A certain small number of deaths have been reported. Most of these deaths have occurred in cases in which the drug was given as a last resort, where the patients would have died without the drug and may be said to have actually died in spite of its use. But there have also occurred a few cases of hemorrhagic encephalitis in which the drug seems to have been the lethal agent. Three cases of this character are reported in one of the more recent books dealing with 606 and four more reported, or rather mentioned, at the recent meeting of the A. M. A. at Atlantic City. Few as these cases are they are sufficient to cause a certain hesitation in rash use of the remedy.

Browning and Mackenzie, joint authors of a valuable book on Salvarsan published late in 1911, believed these cases to occur once in 40,000 administrations.

They also mention that similar cases have occurred in syphilitics who were taking mercury, and that the mercury was believed to be a causative agent.

These cases give additional weight to the charge that salvarsan causes other changes in the nervous system. The chief accusation concerns its action on the auditory nerve. It is said that as atoxyl attacks the optic nerve, so salvarsan shows an evil affinity for the auditory.

It is true that various individuals have had attacks of deafness attended by facial paralysis, vertigo, staggering gait and vomiting, but these cases differ in nothing from similar attacks in syphilitics recorded before salvarsan was invented. Dr. E. A. Crockett of this city reported cases of that character. He mentioned that he had seen 20 or 25 cases during the previous year since they had been called to his attention.

Two of the cases reported with some detail were of special interest in this connection. One was attacked with deafness, dizziness, staggering gait about six months after the contraction of his disease. During that time he had been under treatment by mercury and iodides and was still under such treatment.

The other case had the same symptoms—had had the disease about the same length of time but had had absolutely no treatment whatever. These cases occurring before 606 correspond exactly with the cases of deafness which occur after 606.

Other cases of the same character were reported by many aurists and syphiliographers before 606 was invented. These cases are thus syphilitic in character, and since the present dis-

cussion as to the value and danger of 606 they have been termed neuro-recurrences or neuro-recidives. I shall refer later to a case of this character. But while their syphilitic character is recognized, their possible relation to 606 remains to be determined. Finger claims to have seen twice as many affections of this character since 606 as before, and in consequence he has abandoned its use.

Personally I cannot help feeling that the new interest felt in syphilis must have something to do with the recognition of this aspect of the disease, that cases that would previously have not been reported have of late been brought to public attention.

These cases simply show that 606 fails to reach all the spirochætæ in the body. These cases improve under a repetition of the drug or other antisyphilitic treatment, though unfortunately some degree of deafness persists in some cases.

The best argument for the curative effects of the drug are found in the re-infections which have taken place after its use. There are several such cases reported. The immunity of syphilitics against further infection is evidently due to the fact that the syphilis still remains present and the renewed inoculations show that they have been freed from its continuance. If such reinfections should be finally confirmed it would settle the value of 606. It would show that we really have it in our power to cure the disease.

In primary syphilis 606 removes the original lesion with wonderful rapidity. Mercury also heals the primary sore. The chancre is also healed without remedies but by 606 it is rendered sterile within 24 hours. It is entirely healed much more quickly than by mercury and the constitutional symptoms have failed to appear up to the present time in a large number of cases. We have every reason to believe that 606 given before secondary symptoms or just as they appear and followed by mercury actually cures the disease. This clinical observation is confirmed by blood examination.

Certain personal experiences deserve mention. It has been my opportunity to treat in this way during the past years four physicians with primary syphilis of the hand received in the practice of their profession. All have recovered, to all appearance, without constitutional symptoms. It is no small privilege to retain in active practice men who otherwise must have remained inactive for a series of months at least. These cases ought to rank high in our estimate of the value of salvarsan.

Certain chancres of the lip ought to be mentioned. One was a little girl of 13 who appeared at the Boston Dispensary several weeks ago. She had upon the upper lip a sore which was clinically a chancre. Spirochætæ were found and Salvarsan was administered at that first visit. The sore itself has entirely healed and no later symptoms have yet appeared although the time is long past for their appearing. We hope that she, also, is cured.

It may be considered irrelevant but I cannot avoid speaking here of the work of the Social Service of the Boston Dispensary in this case. It was naturally a matter of interest to know the source of this little girl's infection and she was called upon later at her address by our social worker who found a syphilitic baby in the family where she was visiting and brought the baby and its relatives under medical care.

In the same way a young woman with a chancre of the lip who was the sole support of a family of five was quickly restored to work before the family became public charges. Two or three domestics have similarly been helped and we believe cured, though we recognize that time alone can determine.

In secondary syphilis the moist lesions, mucous patches and ulcerated papules are rendered harmless almost immediately.

Various patients especially worthy of mention have come under observation.

A mother accidentally infected, communicated the disease to the father. Both father and mother showed abundant mucous patches. Their little girl of six was so far unharmed. 606 healed the dangerous moist lesions in the parents and removed the danger from the child.

In late destructive or tertiary lesion 606 shows the same ability to act more quickly than mercury. We all know how valuable potassic iodide is in such cases.

Some of these late cases have continued in more or less active a condition for years. Some are simply recurrences after years of quiescence. All show the persistence of the disease and most of them its persistence in spite of treatment. One who uses salvarsan at all naturally feels a desire to give the patient the opportunity to recover if possible under its use.

A single case is worthy of report here.

A man presented himself recently at the Boston Dispensary with deafness and ringing in the ear, intolerable pain in the head, facial paralysis and unsteady gait. He had been a patient at that institution thirteen years and shows today numerous scars of an early malignant case. He has had no treatment since that time. Potassium iodide and mercury caused a very rapid improvement in his symptoms but he still complained of intolerable pain. He was then given salvarsan with rapid relief.

The benefit from 606 in this case was very marked. It is possible that the same benefit would have finally followed the iodides and mercury but it was immediate after salvarsan. But the case is most valuable as showing the effects of the disease by the same group of symptoms which sometimes follow the administration of 606.

The lesions of the nervous system which represent actual destruction of the parts affected are no more healed by salvarsan than by any other drug. It is a great disappointment to be obliged to recognize that tabes or general paralysis are little if any more under control since the

advent of salvarsan than before. It may be said for salvarsan that the pains of tabes are diminished by 606. The nervous lesions which we are accustomed to treat by potassic iodide are also helped by salvarsan. Salvarsan is probably a little better of the two drugs.

It has been already mentioned that salvarsan renders syphilities much less dangerous to the community. This puts into the hands of health authorities an instrument of the greatest value, which has not yet been used as freely as might be. One of the difficulties in the control of syphilis has been in the very long time during which it was necessary to detain patients in hospitals and almshouses. The rapid action of salvarsan does away with that serious objection.

It was early recognized that Professor Ehrlich would not remain satisfied but would continue his studies and a neosalvarsan, numbered 914 is now the subject of clinical investigation. It is more easily manipulated, is less irritating as an intramuscular injection and may be repeated indefinitely. Its virtues are not finally settled and it has not yet been put upon the market.*

SUMMARY.

The present status of salvarsan may be summarized as follows:

It is the most rapid and powerful antisyphilitic known.

It is not without its dangers which are sufficient to induce *caution* in its use but not its abandonment.

It is not yet possible to promise absolutely a cure.

One should not urge its use upon those who are impressed by its possible ill effects.

It should be used in conjunction with mercury in all cases in which a diagnosis can be made before general symptoms appear.

It should be used in all cases in which patients are not progressing well under ordinary treatment in any stage.

It should be used in all cases in which patients are an especial danger to the community.

It should not be used in maximum doses but rather in repeated medium doses and in exceptional cases in repeated minimum doses.

So used it is one of the most wonderful drugs ever conferred upon humanity.

* Since this paper was read neosalvarsan has been placed at the disposal of the Profession.—Editor.

Clinical Department.

TWO CASES OF ORCHITIS DUE TO MUMPS TREATED BY OPERATION.*

BY GEORGE G. SMITH, M.D., BOSTON.
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THIS paper is a preliminary report of the pathological findings and clinical results obtained by operation upon two cases of orchitis due to mumps. The primary object in operating was to prevent, if possible, the atrophy which so frequently follows this affection. The method employed, which was suggested to me some time ago by Dr. Hugh Cabot, was based upon the theory that atrophy resulted from the increased intratesticular pressure caused by the inflammation. Relief of this tension obtained by slitting the tunica albuginea would, it was hoped, restore the circulation and preserve the testicle.

Operation having been decided upon for the above reasons, it seemed an excellent opportunity to see if we could isolate the organism which other observers had described, and to secure for study specimens from the diseased gland.

The patients were two young men, roommates, one of whom presumably got the infection from the other.

CASE I. F. C., age 22, cashier, single. Never sick except for measles. Denies venereal infection. July 1, 1912, the right parotid began to swell and be painful. A few days later, the left side followed suit. July 9, the left testicle became sensitive and began to swell, and for two days got progressively worse. There was no burning on urination.

My first examination, July 11, showed a flushed, well developed young man, with considerable swelling of both parotids. Thorax and abdomen normal. No urethral discharge. Right testicle normal. Scrotum contracted, not reddened. Left testicle was three times as large as its fellow, hard, smooth, only moderately tender. No hydrocele, skin not adherent. Epididymis and vas not abnormal. Rectal examination showed a soft, small prostate, not tender. Vesicles not indurated. T. 104°. P. 104. R. 26. He was sent to the Baptist Hospital, and flaxseed poultices applied.

July 12. Skin of scrotum red. Some hydrocele present. Testicle was larger and more tender. The epididymis had become palpable. Operation advised but rejected. July 13. Testicle felt a bit less swollen. Hydrocele had increased. Epididymis was more clearly involved. The patient requested operation which was done under ether, after soap and water and alcohol preparation.

Operation: 2-inch vertical incision along anterior aspect of left scrotum. Tunica vaginalis opened with escape of about one ounce of turbid yellow fluid from which a culture was made. The testicle was delivered through this incision. It was three times the size of a normal testicle, firm and elastic on palpation. The color was more bluish than is usual, and throughout the tunica albuginea were scattered many minute reddish specks, probably punctate hemorrhages. The epididymis was definitely enlarged, soft, without induration, and of a deep red color which at the globus major became almost black. It was the picture of intense acute congestion. The cord was somewhat edematous, the vas normal. The tunical albuginea was slit with the knife in a dozen places, the incisions being not over one-quarter inch long, parallel to the long axis of the testicle, and extending just through the tunica. There was considerable ooze from these, lasting a few moments; one spurter required a ligature. The testicular tissue showed no tendency to extrude. The tunica covering the epididymis was also scored in about six places.

The testicle was replaced in the scrotum, a rubber tissue drain left in and the scrotal wound closed

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about the drain by a subcuticular silk worm gut suture. The scrotum was tightly compressed in an Alexander bandage.

July 14. T. normal. No pain since operation.
July 15. Same. Urine turbid, high-colored, containing v. s. t. of albumen. No sugar. Sediment: some pus.
July 16. Drain removed. Testicle of normal size. Only slightly tender.
July 17. Up and about. Urine still contains pus.
July 19. Discharged from the hospital.
July 20. Stitch removed. Testicles of same size. Urine sparklingly clear, no albumen.

CASE II. P. H., age 27, waiter, single. Never sick before. Denies venereal disease. Both parotids began to swell on July 18. Rest in bed advised and carried out. Six days later pain and swelling in parotids had almost disappeared. Left testicle began to swell followed in a few hours by swelling of the right testicle. Patient complains of sleeplessness, headache, pain in joints and dull ache in testicles. Some frequency of urination. A. M. T. 103°. P. M. T. 105.2°. P. 108. General examination at this time showed a soft systolic murmur over precordia, otherwise nothing abnormal save for slight swelling in parotids. No urethral discharge. Scrotum not reddened; contracted. Both testicles swollen, hard and tender, the left being more so than the right. Left epididymis palpable and tender, right normal. No hydrocele; neither vas enlarged. Sent to Baptist Hospital. The next day (July 26) the left testicle seemed much better, the right decidedly worse. A. M. T. 103°. P. 92.

Operation was done under ether; the right testicle was delivered as in Case I and found to present an almost identical picture. The same operative procedure was followed.

July 27. Has had no pain. Slept well. Afternoon temp. 100.2°. P. 88. Urine high colored, reddish, sp. gr. 1023. Albumen v. s. t. Sediment-blood cells, rare leucocyte.
July 28. Drain removed. Testicle almost as small as the left one, and not tender. Temperature normal.
July 31. Discharged from hospital.
Aug. 2. Right testicle still slightly larger than the left. Cord slightly edematous.

There are a number of facts about the orchitis of mumps, in regard to its incidence, the side involved, etc., which have been worked out by Laveran and Catrin (v. bibliography) in the epidemics occurring in the regiments to which they were assigned. In brief, they found that in adults orchitis is likely to occur once in every three cases of mumps. It appears in from two to sixteen days after the beginning of the parotitis, usually between four and eight days after. There is no apparent relation between the side involved and the location of the mumps. In 43 cases, Catrin found 13 bilateral, 18 right, 12 left. The fever, according to Vedrennes, lasts from two to six days, usually falling by lysis.

It is not with such facts as these, which can be determined only by the observation of large series of cases, that this paper is chiefly concerned. I shall consider here the result of treatment and present a report of the pathology.

Dr. S. B. Wolbach, Assistant Professor of Bacteriology in the Harvard Medical School, for whose able assistance I am most grateful, reports as follows:

"A small piece of testicle tissue from the first case was preserved in absolute alcohol, embedded in paraffine and sections stained with eosine-methylene blue and Giemsa's stain. Two pieces of tissue, each including the tunica albuginea and five to six millimeters of testicle tissue, were saved from the second case; they were preserved in Zenker's fixative and alcohol corrosive, embedded in paraffine and sections stained with eosine-methylene blue and Giemsa's stain respectively. The two cases show identical processes. The following description is taken from the sections of the second case because the sections are larger and the fixation and strains more perfect.

"The process does not affect the testicle tissue uniformly. There are groups of seminiferous (convoluted) tubules which are completely destroyed and distended with exudate, separated by areas of normal and slightly affected tubules which contain large numbers of mitotic sexual cells, though few mature spermatozoa.

"The exudate in the destroyed tubules consists chiefly of polymorpho-nuclear leucocytes and phagocytic endothelial leucocytes. The cells of the tubules have mostly undergone a hyaline degeneration and are taken up by phagocytic endothelial leucocytes, though there are occasional perfectly preserved mitotic sexual cells scattered among the tightly packed exudative cells.

"The intertubular connective tissue everywhere is edematous and between the tubules most affected contains coarse, meshed fibrin, small areas of hemorrhage and many polymorpho-nuclear leucocytes and endothelial leucocytes.

"Among the groups of least affected tubules there are some with normal epithelium, but with lumena partly filled with polymorpho-nuclear and endothelial leucocytes, as if the process was spreading along the lumena.

"There are many more tubules, however, which show lesions involving a small portion of the circumference, where it appears as if the process was extending from the intertubular connective tissue. In these places numerous leucocytes are found in the act of migrating through the basement membrane of the tubules. These small lesions contain deeply staining hyaline degenerated sexual cells, hyaline fragments, polymorpho-nuclear leucocytes and endothelial leucocytes. The immediately adjacent epithelium is usually full of mitotic sexual cells showing the various stages of spermatogenesis.

"The tunica albuginea is edematous, and there are small hemorrhages and zones of cellular exudate about blood vessels. The cells about

blood vessels are polymorpho-nuclear leucocytes and endothelial leucocytes.

"Mitotic endothelial cells in the lumena of capillaries occur in the tunica albuginea and intertubular connective tissue.

"Liquefaction necrosis is not present either in the tubules or in the connective structures.

"No bacteria or other parasites can be found in the sections and in film preparations made at the time of the operation. Ordinary stains, Gram's stain and Giemsa's stain were employed."

The observation made by Dr. Wolbach that the process seems to spread partly by extension along the tubules may prove of interest when taken in conjunction with the clinical observation of several writers that the process appears to affect the epididymis first. In a few cases this organ alone has been involved. If it can be shown that the inflammation does begin in the epididymis, extending thence into the testicle by way of the ducts, it will be another demonstration of the contention of Belfield that the epididymis still retains a part of the excretory function which it possessed during fetal life.

As regards the bacteriology of mumps, there seems to be very good evidence that the organism is a diplococcus. Teissier and Esmein and Laveran and Catrin have isolated this coccus from a majority of the cases which they studied. Herb has reproduced parotitis by inoculation of dogs.

In both our cases, however, the blood cultures and the cultures from the hydrocele fluid and testicular tissue were bacteriologically negative. Inoculation experiments with incubated media are still in progress.

Success in the treatment of this disorder hinges upon the prevention of atrophy. With rest in bed, the acute symptoms will disappear in a few days, hastened of course by poulticing. Under such treatment, however, atrophy occurs in rather more than 60% of the testicles affected. (Laveran and Catrin's figures, based on 197 cases). Operation cannot offer a very great improvement in immediate results, for they will be good anyway. It must base its claim to existence upon the showing of fewer atrophied testicles, one year after their orchitis, than can be produced by the older and more conservative method.

It is with the hope that such statistics may be gathered that these cases are reported.

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Medical Progress.

PROGRESS IN DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

ECZEMA AND ITS TREATMENT.—ECZEMATOID RINGWORM.—CLINICAL APPEARANCES AND ETIOLOGY OF IMPETIGO CONTAGIOSA.—QUININE IN URTICARIA.—IODIDE OF IRON ERUPTION RESEMBLING SMALL POX.—TREATMENT OF RODENT ULCER BY FREEZING.—HYPERKERATOSES FROM GONORRHOEA.

1. ECZEMA AND ITS TREATMENT.

ALEXANDER (Charlottenburg) alluding to the newer methods of treating eczema, considers the light and ray treatment as one of the most important of recent innovations. The treatment of chronic eczema by the Röntgen-rays is (he declares) commonly considered today the best, surest and most convenient method, and has very considerably improved our resources for combating obstinate cases. The quartz-lamp is to be resorted to in rebellious cases, which have not yielded to the Röntgen-rays or to applications. The hot-air treatment of infantile eczema is also well spoken of. Although the writer seems very enthusiastic about the Röntgen treatment, he admits that there are many cases that prove rebellious to this method and that have to be handled with the old treatment by applications with its advantages and disadvantages.

Of the newer remedies, lenigallol is of great value in all stages of eczema, except the very acute. Galewsky has lately recommended it even in the obstinate cases of infantile eczema in 1–4–5%. Lenigallol is a derivative of Pyrogallic acid and is effective by its slowly drying action on the affected patches. It has the disadvantage of coloring the skin black when used for a long time. It is used by adding 2–10% to zinc paste, beginning preferably with the former strength.

Tumenolammonium, introduced by Neisser and Klingmüller, is used as an antipruritic in the proportion of from 5–10%.

Tar still remains the last resort in obstinate cases, in the form of tar ointments, tar paints and tar baths. The tar baths are difficult of application and have the disadvantage that it is impossible to treat in this way the affected part only. Coal tar has lately come into renewed use (Brocq, Jambon, Dind) and one great advantage lies in the great freedom from irritating qualities. It is contraindicated in cases where the skin is infected. A very good procedure is to begin with a mild lenigallol paste and lead up to a tar paste and finally pure coal tar.

The writer thinks that little advance has been made in treating eczema by dietetic régime. The theories of diathesis and autotoxic action from the intestinal tract, that may cause dermatoses, have little to recommend them. Finkelstein's "Ekzemsuppe" or "entsalzte milch" in the treatment of infantile eczema was hailed by many who had just had their turn in meeting

the stubborn cases of this affection, which could not be treated by Röntgen-rays or by the light treatment. The method has not, however, been found as yet of great value, and inasmuch as it seems of the greatest difficulty in each individual case to find the very best nutritive régime, it is best to rely on the old and improved methods by external applications.

Seborrhoic eczema demands somewhat different treatment from the other forms, as we may begin with stronger applications, so-called reducing agents, sulphur, resorcin, chrysarobin, etc. Obstinate eczema of the anal region may be treated according to Veiel, with a 1–5% calomel ointment, taking care to protect fissures or excoriated places beforehand by an indifferent application. Possibly the efficacy of this remedy may be explained by Bockhardt's discovery of staphylococci in pure culture in the folds and fissures of verrucous and thickened anal eczema. If the folds and fissures are wiped several times a day with 90% alcohol, and then painted with tar, much the same result is accomplished, by destroying the micro-organisms. In pruritus of the anus and also of the vulva the writer has had good success with high frequency currents followed by the Röntgen-rays.

2. ECZEMATOID RINGWORM.

In a discussion of this subject in the dermatological section of the Royal Society of Medicine. Nov. 16, 1911. Dr. Whitfield, opening, said that the affection called by Hebra eczema marginatum was known for many years to dermatologists as seated in the groin, without any particular attention being given to its occurrence elsewhere. The speaker in 1908 reported in the *Lancet* a series of cases of ringworm of the hands and feet which were unlike ordinary tinea circinata clinically and from which he could not procure a culture. In 1910 Sabouraud published a report of seven cases in which he showed the cause of eczematoid ringworm of the hands and feet to be the same as that of eczema marginatum and of "Dhobi itch," *i. e.* an organism which he had named epidermophyton inguinale. Whitfield remarks that it is seldom that one sees inguinal ringworm in the outpatient classes, and that he had himself hardly seen an instance of it. He surmises that this may be due to the fact that in the case of hospital patients the washing is usually done at home, and that the expression "dhobi" *i.e.* washerman's itch, is often true etiologically. Whitfield would divide these cases of eczematoid ringworm into three classes, the acute vesicular type, the chronic intertriginous of the toes, and the chronic hyperkertotic of the palms and soles. The diagnosis of the acute vesicular form is very difficult, if not impossible without the aid of the microscope, as there is usually no ring formation or sharp boundary line. In the chronic intertrigenous type there is usually a definite margin and the free edge of the scale is always turned toward the centre of the eruption. In the third or hyperkeratotic type, the disease attacks the whole of the soles and sometimes the palms. There are enormous masses of hypertrophied horny layer, but no sharp boundary. In the two latter types the affection has been found to have existed over a number of years. Whitfield considers that this affection of the palms and soles is not such a great rarity, as he has seen fifteen examples of it.

As to treatment, an ointment of 5% benzoic acid and 3% salicylic acid in soft paraffine and cocoanut oil, made stronger when the affection was situated on the hands and feet was found to be effective. If not, chrysarobin is to be resorted to.

At the same meeting a communication was read from Dr. Sabouraud, who stated that eczema marginatum of Hebra, whose description cannot be improved on today, had for a generation been the term applied to erythrasma, intertrigo, or ringworm of the flexures. It is only the cases of the latter category that should be classed as eczema marginatum and in this the parasite is not a tricophyton; it does not attack the hair and grows only in the flexures. He considers that 8 out of 10 cases of so-called intertrigo of the toes are caused by the epidermophyton inguinale. The parasite is at first localized at the bottom of the flexures. Several examinations may be necessary before the fungus is found, but it is there often in considerable quantity. In the case of an eczema or intertrigo of the feet one must always think of this eczema marginatum of Hebra. The eruption is rarely seen between the fingers.

Several members in their remarks alluded to the frequency of epidemics of this affection in schools and sanitaria.

3. CLINICAL APPEARANCES AND ETIOLOGY OF IMPETIGO CONTAGIOSA.

This communication is based on an article in the Japanese *"Zeitschrift für Dermatologie,"* 1904. The chief point of the article is the insistence on the existence of a second form (beside the classic one) of impetigo contagiosa, which the writers name impetigo contagiosa albo-staphylogenes.

Matzenauer has shown that impetigo contagiosa was recongized by older writers than Tilbury Fox, inasmuch as Friese of Breslau described in 1801 a form of pompholyx benignus which was identical with impetigo contagiosa, or as the Japanese investigations claim, the form impetigo contagiosa albo-staphylogenes. This form is different from the ordinary one in its bulla-producing character and in the presence in the lesion of the staphylococcus albus alone. There appears every summer in Tokio as well as in other parts of Japan an affection of children characterized by the formation of bullae that is sometimes sporadic, some-

times epidemic. The first cases usually appear in April, and the last in November or December. Infants and children up to 5 and 6 years of age are most frequently affected, sometimes adults. The localization is the face and the uncovered portions of the body. The eruption appears as drop-like vesicles which come suddenly on the sound skin, without, as a rule, a preceding erythema. They vary in size from the head of a pin to a hen's egg, their contents are at first clear, later turbid. The lesions are usually isolated and appear one after the other rather than in crops. In some cases they may be very closely aggregated, and assume a serpiginous course. The duration of the bullae is from 2 to 14 days. The contagiousness is so apparent that it is usually remarked on by the mother, as similar bullae appear wherever the contents of a lesion comes into contact with the skin of the same or another individual. The general bodily condition is good and there are no subjective symptoms. The whole process takes several weeks before it has fully run its course.

A search of the literature has shown numerous reports of bullous dermatoses, besides those of Friese, that the authors consider the same as this staphylogenous form of impetigo contagiosa, *i.e.* Lewkowitsch, Stelwagon, Pontoppidon, etc. They do not, however, apparently include all the reported epidemics of pemphigus monatorum under this heading.

As to the etiology of the form in question, the same coccus was found in the contents of the vesicles and in the adjacent cutaneous tissue in all cases, and its cultures produced an identical eruption when inoculated on the skin of healthy persons. From these inoculated lesions micro organisms identical with the cocci originally found could be recovered. These micro organisms correspond in every particular with the white pyogenous staphylococci. It is a well known fact that the staphylococcus aureus produces relatively deeper and more intense inflammations than the albus, which is in accord with the fact that in the type of impetigo in question the pus-formation is very tardy. A number of cases of each form of impetigo contagiosa are then described and the conclusion is reached that there are two forms of impetigo contagiosa clinically and etiologically different, the one characterised by vesicles and bullae with at first clear, later slightly turbid, contents. The resulting crusts are very thin and of a whitish tint. This form is due to the staphylococcus pyogenes albus. The second form, the ordinary one, is characterized by thick, waxy-yellow crusts and is due to the streptococcus pyogenes. The presence of yellow streptococci in the case of either of the forms is to be regarded as secondary. The first form often appears in the form of epidemics among small children and only in the warm season, whereas the second form, the streptogenic appears sporadically at any season, and affects adults as well as children.

4. QUININE IN URTICARIA.

Wolff of Berlin first observed the efficacy of quinine in urticaria in his 6 year old daughter, who had suffered during the spring for several weeks with a case of this affection that had defied many different modes of treatment, both external and internal. Quinine was suggested by an article by Bergrath of Neisser's clinic on the successful action of quinine in pemphigus, inasmuch as the case of urticaria was as complicated by the formation of bullae (urticaria bullosa). The administration of 0,, 1 quinine three times daily after eating caused a rapid disappearance of the affection. Thereafter Wolff tried this remedy in six cases, too small a number, he confesses, from which to draw definite conclusions, but the results in all of these cases were most brilliant, and inasmuch as the drug is a relatively harmless one further trials seem indicated.

Apart from its use in the affections in which it has proved a specific, *e.g.* malaria, quinine has been pushed somewhat into the background, since salicin, antipyrin and the host of antifebrile, and antirheumatic drugs came into prominence. In urticaria there is, judging by the symptoms, an irritant which acts upon the vessel nerves, especially on those of the skin. It is to be assumed that this irritant is represented by a chemical substance that is generated in the intestinal tract. So much is common to all the theories of the pathogenesis of urticaria. According to the etiology it is possible, therefore, to obtain favorable therapeutic effects from the employment of different medicaments. Most cases of urticaria are surely caused by an intoxication, arising in the intestinal canal, an anaphylaxis, as has been maintained of late. Following Friedberger's discovery that anaphylaxis is caused by the absorption of albumen from the intestine, it is even possible theoretically that every albumenoid nutritive may produce anaphylaxis, *i.e.* in this case urticaria, and that a complete elimination of albumen from the diet, with the ingestion of only fats and carbo-hydrates for a time, is worth a therapeutic trial in obstinate cases of urticaria. A further argument for the anaphylactic nature of urticaria may be adduced from the successful use of chloride of lime and atropin in this affection. The writer thinks it probable that quinine may also prove of value in other affections that may be due to anaphylaxis.

5. IODINE OF IRON ERUPTION RESEMBLING SMALL POX.

At a meeting of the Dermatological section of the Royal Society of Medicine, on May 16, Dr. E. W. Goodale presented the report of a case of severe dermatitis due in all probability to the ingestion of iodide of iron. The subject was a man of 23, who had a mitral regurgitation and nephritis, with edema of the lower extremities and heart failure. There were vomiting, head-

ache and other symptoms that seemed to point to a beginning malignant endocarditis. The eruption first appeared on the face in the form of papules which rapidly became vesicles. When first seen the face and neck were covered with a vesicular pustular eruption which had become confluent about the nose, lips and cheeks, while elsewhere discrete. The vesicles were pale yellow in color like those of the late vesicular stage of small pox. The discrete vesicles, however, were monolocular, unlike small pox, and there was no attempt at umbilication. The eyelids, nose and lips were swollen and painful. The lesions were superficial, with very little induration. There were a few scattered lesions on the shoulders, chest, back, wrist and thighs.

A suspicion of small pox had been excited by the appearance of the eruption. The patient had been vaccinated in 1902 and showed four good vaccination marks on the left arm. Previous to the eruption there had been a rise of temperature and when the eruption was coming out it rose on one evening to 103°, gradually falling until the patient's death, five days later.

The only cause of the eruption that could be found was ferrous idodie; the patient had taken during two successive days, just before the appearance of the cutaneous manifestations, six doses of ferrous iodide in all, 32.7 gr. of the drug. The writer makes mention of a similar case that he had seen six years previously, in a woman of 32, who had chronic heart disease and right hemiplegia, in which there was a positive diagnosis of small pox made and the patient sent to the small pox hospital. In this case the eruption appeared suddenly after taking 60 grains of iodide of potassium in 10 grain doses.

(A considerable number of cases of a pustular eruption resembling small pox and due to the iodide of potash have been recorded. A case seen by the reporter during a small pox epidemic created the greatest embarrassment for a time on account of its striking clinical similarity with variola. In most of these cases of intensely toxic (anaphylactic?) action of this drug, there have been lesions of the heart and kidneys. Such cases have sometimes been the immediate cause of death. Rep.)

6. TREATMENT OF RODENT ULCER BY FREEZING.

In a paper read before the Electrotherapeutical section of the Royal Society of Medicine in April, Morton emphasizes the fact that rodent ulcer is a superficial condition in its earliest stages, locally malignant but without causing metastases. For the latter reason methods of local application are of the greatest value.

The most common method at present in use are the x-rays, radium, zinc ionisation, and solid carbon dioxide. It is so easy to get process to heal over that this becomes a real danger, as many cases are thus reported as cured that have not been completely destroyed.

Treatment by any form of irradiation depends on the absorption of the rays by the tissues. The effect of irradiation becomes less the deeper we go, and it is estimated that the wished-for effect cannot be produced at a greater depth than ½ centimeter from the surface. In the case of rodent ulcer, x-rays or radium are superficially absorbed and cause the ulcer at the surface to heal before the deeper seated prolongations of the disease have been affected. The case is the same if the zinc ions are used. The cases of recurrence in the shortest time that the writer has seen were treated by the latter method.

Radiologists know that many complete and satisfactory cures have been obtained by all of the first three methods spoken of. Yet for the reason that a considerable number of recurrences must be admitted, the writer suggests a more extended trial of carbon dioxide snow.

Reports of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

TWENTY-SEVENTH ANNUAL MEETING, HELD AT ATLANTIC CITY, N. J., MAY 14–15, 1912.

First Day: Tuesday, May 14.

(*Continued from No. 9, page 295.*)

STUDIES IN EXPERIMENTAL PNEUMONIA.

DR. DAVID RIESMAND AND DR. JOHN A. KOLMAR, Philadelphia: The pneumoniacus is conceded by all to be the cause of pneumonia in man, but the experimentum crucis, the reproduction of the same disease in animals, has not been made. We have repeated the experiments of Lamar and Meltzer in 11 dogs and have succeeded in producing pneumonia in 7, and 4 failures being probably due to using a catheter with a lateral instead of a terminal opening. We are, however, not convinced that the process induced in the animals can be called lobar. It appears to us that in our cases at least we had to deal with a confluent lobular bronchopneumonia. In an endeavor to obtain some light upon the crisis of pneumonia, that remarkable and baffling phenomenon, we made another series of experiments of which we wish to make a preliminary report. We injected rabbits subcutaneously with extract of normal lung in the stage of red hepatization and extract of lung in the stage of gray hepatization. Sixteen days later the animals were injected, this time intravenously, with the same material with which they had been sensitized. Those receiving the normal lung and red hepatized lung died in every instance of anaphylactic shock, in five or six minutes. Those receiving extract of gray lung became ill but recovered without exception within ten minutes. Though we have speculated upon this interesting phenomenon, we have at present no theory to offer, but hope to continue the investigation.

EXPERIMENTAL STUDIES ON PNEUMOCOCCUS INFECTION IN ANIMALS.

DR. A. B. WADSWORTH, New York: Virulent pneumococci when studied in the test tube, and as compared with many other bacterial species, are exceptionally insusceptible to both bacteriolysis and phagocytosis — the two processes by which the body

rids itself of the infectious agents of disease. Virulent pneumococci in the body tissues are also insusceptible to the action of most of the immune sera with which attempts have been made to cure the infection in both man and animals. Yet recovery takes place spontaneously in both animals and man. In order to determine why it is that the significance of pneumococcus immunity is so strikingly manifest in the recovery of man from lobar pneumonia, and the action of the blood sera of immunized animals on the pneumococcus so singularly inadequate in the test tube and in the treatment of infection, the following series of experimental studies were undertaken. These comprise: Studies on the action of dead pneumococcus cultures on animal tissues on the action of immune sera on the pneumococcus; on the action of elevated temperatures on the pneumococcus; on the action of hyperthermy on pneumococcus infection; and finally, studies on the action of immune sera on pneumococcus infection and of the mechanism of recovery from pneumococcus infection. In general it was found that the dead pneumococcus cultures failed to incite disease processes comparable with those seen in active infection, but that an adaptive tissue reaction was incited which rendered the animal immune and gave rise to the well-known agglutinative, precipitative, lytic and opsonic activities in the blood serum.

From the study of the action of immune sera on the pneumococcus under ordinary conditions it was found that the insusceptibility of the pneumococcus to bacteriolysis and phagocytosis was due to the exceptional virulence, adaptation and growth of this organism. But in the tissues both lysis and phagocytosis took place and the activity of the pneumococcus was therefore inhibited or neutralized in some subtle manner. The thermal limits of pneumococcus growth were found to approximate very closely temperatures often attained by the pneumonia patient and the bacteriacidal action of immune sera at these temperatures was greatly exalted. These signnicant results were further supported by those obtained in the study of the effect of hyperthermy on pneumococcus infection by which it was shown that although the animal organism may be injured, the activity of the infectious agents may be markedly inhibited during the hyperthermy under certain conditions, the most important of which was the presence of an active protective mechanism in the tissues. Finally, it was found from the results of the study of the action of immune sera on pneumococcus infection, that the curative action of antibacterial and antitoxic sera obtained by the immunization of animals with dead virulent pneumococcus cells and with culture filtrate free from bacterial cells is slight, whereas sera obtained from animals immunized with virulent living cultures possessed marked curative action inducing crisis. In the mechanism of such recovery the neutralization of the products of the pneumococcus, whether toxins or endotoxins, was found to be the dominant determining factor to which the destruction of the bacteria whether extracellular by bacteriolysis or intracellular by phagocytosis, was incident.

DISCUSSION.

DR. RUFUS I. COLE, New York: As we all know, the use of this serum clinically has not been of any value and we have tried to determine upon what this depends. We have found that one very quickly reaches the point where no amount of serum injected into the animal will save him. The body must produce some additional protective substance, some complementary substance, which is necessary for the animal in addition to the serum. We feel that this is at least one of the reasons why such serum is not effective and our efforts in the future must be stimulated towards inducing the animal to produce these additional substances.

FORMS OF SEPTIC INFECTION FOLLOWING OPERATION ON THE TONSILS AND ADENOIDS.

DR. HERNY KOPLIK said there was very little literature on the subject of infection after the removal of tonsils and adenoids. Having had some of these cases he has classified them in the following way. In the first two or three days after the removal of tonsils the patient will run a mild temperature or the temperature may be quite high. The temperature sometimes continues for two, sometimes three weeks. A physical examination of the patient in the most thorough manner fails to reveal infection. Another form of infection is that in which the sepsis takes the form of a septic endocarditis either severe or mild.

DISCUSSION.

DR. JAMES TYSON, Philadelphia: I have recently had under my observation one case which perhaps more nearly approaches the second category which Dr. Koplik has given us. An adult three days after the removal of his tonsils was seized with a chill and fever and continued with a fever without any definite signs of local lesion. At my first visit I found a condition of sepsis with very sharp pleuritic pains which seemed to be associated with a modified resonance which I thought might have been an embolic pneumonia. At the end of the week I saw him again. During that time there had been an intermission of the fever and then recurrence. The man was evidently worse and I discovered in the opposite part of the chest a few friction rales which I ascribed to pleurisy. After that a steady progression from bad to worse took place until the man died in profound sepsis.

DR. JOHN W. BRANNAN, New York: I would like to ask Dr. Koplik in what proportion this infection occurs? In all the cities an enormous number of these operations are performed practically every day. The school teachers and school nurses bring them to the hospitals for operation.

DR. HENRY KOPLIK, New York: Dr. Meltzer asked whether I thought that these conditions followed as the result of the tonsillectomy. I certainly do. I bring that out in my paper because the literature shows that such a thing is possible experimentally. Bacteria exist about the neck and tonsillar ring and these bacteria are called into play by operation — not criticizing the interference at all in any way. The frequency of these infections must be quite great. To show you how the surgeons regard this matter, in one of these very cases cited in the paper the surgeon who operated said he had performed a thousand tonsillectomies but could not believe that fever would follow. It was very difficult to make this gentleman understand that it was no critique on his operation.

THE SYMPTONS OF ACUTE CORONARY OBSTRUCTION.

DR. JAMES B. HERRICK, Chicago: Sudden obstruction of a coronary artery or any of its large branches is not necessarily fatal, though sudden

death often follows such an accident. The view that the coronary arteries are without significant functionating anastomoses is disproven by anatomic studies including stereoscopic skiagraphs of hearts with injected coronaries, and studies of hearts made translucent by special methods. Experiments on lower animals, as well as post mortem examination on man, prove not only anastomoses but also that a sudden obstruction of even a large branch is not necessarily immediately fatal. Clinical observation affords additional proof. An accurate symptomatology of coronary thrombosis cannot be drawn. In some cases death is instantaneous; in others it causes angina pectoris and is followed by rapid cardiac weakness and death. Probably obstruction of smaller branches may be followed by mild parecordial pains and comparatively trifling symptoms. Other cases with obstruction of large vessels have a sudden angina-like pain but death either does not occur or is delayed many hours or days. In these cases, the ones especially under discussion, the pain is extremely severe like angina, though it may be high in the epigastrium. Shock, collapse, vomiting and tympany make the condition not unlike some abdominal accident such as perforation of gastric ulcer, or acute pancreatitis. The pulse is generally rapid, very weak and the heart tones feeble. An acute emphysema at times adds to the difficulties of diagnosis. The mind is commonly clear. An acute pericarditis may occur later. The status anginosus may be present or the pain may leave and the patient feel able to leave the bed. In some instances recovery occurs. In others death follows in a few hours, or after several days. It is important that the condition be recognized, as it enables a more accurate prognosis to be made and also leads to a more rational therapy, especially in the way of prolonged rest and the use of digitalis rather than nitroglycerine.

DISCUSSION.

DR. E. LIBMAN, New York: I have been in the habit of classifying lesions we generally meet in the coronary arteries as follows: Besides the recent thrombosis and embolisms there are cases with partial or complete obstruction by plaques. These are specially to be found in men who have been heavy cigar smokers. If the occlusion by the plaque is incomplete, it may be made complete by a thrombus. In some cases the symptoms are due to a narrowing of the orifice of the arteries by plaques due to atherosclerosis, or puckering. Some cases with closure of the coronary artery live not only for weeks but for months. They present a remarkable facial appearance from which the diagnosis can in some cases be adduced. They have a peculiar dirty ashen color. Sansom referred to it as "a leaden overcast" (but he believed it to be due to disease of the aorta itself). It is valuable to recognize the condition, when possible, because such patients are apt to succumb at any time and particularly after operative procedures.

ŒDEMA OF THE LIVER WITH EXPERIMENTAL NEPHRITIS (CANTHARIDIN).

DR. EUGENE L. OPIE, St. Louis: The possibility that changes in the liver have a part in the functional disturbances which accompany nephritis has been suggested by the occurrence of œdema of the liver and gallbladder in association with experimental nephritis caused by cantharidin. By measurement of the lymph flow from the thoracic duct the attempt has been made to determine the relation of this œdema to the production of lymph and to its flow through the lymphatics and sinuses of the lymphatic nodes. Coincident with the onset of œdema of the liver and gallbladder there is diminution or complete cessation of the flow of lymph from the thoracic duct. At a later period, about one and a half hours after the administration of the drug, lymph flow from the thoracic duct resumes and then greatly exceeds its normal activity. During the early period of diminished flow histological examination of the regional lymphatic nodes of the liver shows the existence of fibrinous plugs frequently formed about cells (in part endothelial) which have been destroyed by the poison. In view of the occurrence of œdema it is probable that the renal irritant causes from the beginning increased flow of lymph which finally overcomes the obstruction interposed by the occluded lymphatic channels. Glycosuria occurs in association with the action of cantharidin and is more marked in proportion to the severity of a proportionate intoxication. Changes in the liver causing liberation of sugar from the liver offer a more plausible explanation than that which refers to the appearance of sugar to renal changes. The occurrence of œdema of the liver and the increased flow of lymph caused by the renal poison add weight to the view that the œdema of nephritis is referable to the poison which causes the renal lesion and is not secondary to disturbances of renal function.

CLINICAL EXPERIENCE IN THE DRUG TREATMENT OF ŒDEMA.

DR. JOSEPH L. MILLER, Chicago: The drugs selected were digitalis, theocin and strophanthin. The cases had been in the hospital for a week or more so that the element of rest could be largely eliminated. In all the cases of cardiac incompetency as a rule digitalis had very little effect. What we did notice was the marked improvement in dyspnœa which is in contrast with what we found in regard to certain other drugs. In a number of other cases which received strophanthin ampoules containing one-tenth of a milligram, there was only a slight increase in the diuresis. The patient would pass very little more urine. They received great relief from dyspnœa. We had ten cases of interstitial nephritis, seven of whom had received digitalis or strophanthus, to whom we gave theocin, four grains a dose, three times a day. The diuresis appeared in nine to eighteen hours. In these nine cases the average daily output which had been 644 cc. increased to 2105 cc. after theocin was started. While these patients rapidly got rid of their œdema their dyspnœa was not always modified. Here we found that theocin had absolutely no effect. When the kidney has reached the point where it will no longer secrete urine all of our ordinary measures are of little effect. It was shown in severe cases where the kidney fails to secrete fluid it is hard to increase excretion. We used Fischer's solution, without success.

DISCUSSION.

DR. H. A. HARE, Philadelphia: The remarks which have just been made in regard to our diuretics in renal disease carry out the idea that there could not be secretion if you do not have a glandular tissue that will carry it out. If the secreting

tissue is gone, I do not see how we can expect any drug treatment to produce any effect. The more I study the influence of various diuretic drugs upon the urinary flow the more convinced I am that unless at the same time we influence the hepatic function, we will fail to get results. I believe there is a relation between the liver and the kidney which is much closer than we think at the present time. It is of little value to make the patient pass a large quantity of fluid unless at the same time we can increase the output of solids. A much more efficient way is by purgation or tapping.

Dr. F. P. Kinnicutt, New York: My own clinical experience is entirely corroborative of Dr. Miller's experience as to the comparative effect produced by digitalis, strophanthus and theocin. In other words, our experience has been in the use of digitalis and strophanthus in this group of cases that we do get marked relief in dyspnœa, but no increased diuresis. On the contrary, with theocin we get increased diuresis but without improvement of the dyspnœa.

Dr. Theodore C. Janeway, New York: Dr. Miller's careful observation on these drugs ought to emphasize the very great importance of kidney function investigations which are being carried on both in regard to water and salt excretion and examination of these test substances. If we could get to the point where we could discriminate in the group of œdema due to excreting substance and the group of œdemas which are due to definite water or salt excretion it would go very far to simplify the treatment of these patients. The problem of the water and salt management of these cases is a matter of vast importance and complexity. I have seen cases where the response of salt restriction was admirable. Water is the best diuretic there is if the patient can excrete water.

Dr. E. Libman, New York: When the agents discussed by Dr. Miller do not cause diuresis, I am accustomed to try some of the older diuretics and often a striking result is obtained. I remember a case treated by Dr. J. Rudish ten years ago with oil of juniper, a drug that must be used with great caution. The patient was water-logged for months and all the ordinary diuretics had been used. The juniper caused so marked a diuresis that the œdema entirely disappeared, and the patient was doing well when seen several months later. In several cases I have seen splendid results from the use of the infusion of apocynum. I usually give it by rectum, diluted with water.

Dr. S. J. Meltzer, New York: Dr. Miller has brought out a fact on the selective action of drugs worth noting. Caffein and digitalis are stimulants for the heart, but caffein causes dilatation of the blood vessels of the kidney while digitalis does not. It would be very well that our rational physicians give digitalis and caffein together in such cases.

Dr. S. Solis-Cohen, Philadelphia: Following what Dr. Janeway has said about inoperable cases, there is one drug which in my own hands has been quite satisfactory when combined with digitalis and that is spartein. It has a distinct influence in reducing blood pressure, in enlarging the volume of the peripheral arteries and markedly increases the flow of urine and solids. It is also the practice of empirical physicians to combine with digitalis one of the vegetable diuretics, preferably citrate of potassium or something of that kind and very much better results can be obtained when these two methods are associated than when either is used alone. I have found it of considerable advantage clinically to rotate in the use of these drugs, using a caffein preparation and spartein either in alternation or on successive days.

Dr. D. L. Edsall, St. Louis: I would like to ask Dr. Miller if he has seen any positive bad results from theocin? It is the strongest stimulant we have to the renal secretion. I have been rather impressed that in some cases where there is no primary disease it may cause increase in albumen and casts and renal irritation. Does Dr. Miller find that correct?

Dr. Miller: I have never seen any bad results following the use of theocin, except the nausea. It exhibits marked disturbance in the stomach so that we found it not advisable to administer for more than two or three days, then discontinue and afterward to begin again. In none of these cases did we find injury to the kidney. In many of these cases the urine was followed up microscopically and there was no apparent increase in the blood or character or number of the casts. While it is true that we are taught that it is sometimes dangerous in nephritis to administer strong diuretics, it has been shown that the diuretic action is due to the effect on the blood supply so that after all, these drugs may not be dangerous.

COMPLETE PERMANENT HEART BLOCK IN AURICULAR FIBRILLATION FOLLOWING THE USE OF DIGITALIS.

Dr. Albert E. Taussig, St. Louis: In auricular fibrillation, digitalis slows the pulse by producing partial heart-block, thus interfering with the passage to the ventricle of some of the very numerous and irregular auricular impulses. In some cases, if the digitalis is pushed, complete heart-block may result, with the establishment of the very slow, regular rhythm characteristic of this affection. Ordinarily this condition of complete heart-block is temporary and ceases a few days after the administration of digitalis is discontinued. It may happen, however, if there is an organic lesion interfering with the conductivity of the bundle of His, that the adminstration of digitalis is followed by the establishment of a complete and permanent heart-block, possibly because the drug gives the *coup de grace* to the already diseased bundle. Report of two illustrative cases.

DISCUSSION.

Dr. H. A. Hare, Philadelphia: If digitalis is given where there is partial heart-block there is very great danger of producing complete heart-block. On the contrary, where there is a complete heart-block, digitalis is going to be a useful remedy. Where there is complete heart-block the digitalis results in speeding up the ventricle.

Dr. James Tyson, Philadelphia: I have had very satisfactory results with atropin in irregular heart action. To me it has been a most invaluable remedy and should substitute digitalis many times when the latter drug is given. I think our further knowledge will lead us to use in irregular heart less digitalis.

Dr. L. F. Barker, Baltimore: Perhaps we can use digitalis and atropin together very well. Digitalis combines with the heart muscle direct and also combines with the vagus and is therefore myotrophic and vagotrophic in its effect. When we need digitalis we can give atropin with it and throw out vagotrophic and myotrophic influences.

DR. GEORGE DOCK, St. Louis: I agree with Dr. Taussig's reserve. In regard to the use of digitalis in such cases it seems to me important to remember that, if we are making proper examinations, including the use of the polygraph, the use of digitalis is not only safe in these cases, but certain to bring a secure addition to our knowledge. If I am not mistaken about Dr. Mackenzie's work it is still in the experimental stage in regard to the use of digitalis in such cases. I think he is not entirely satisfied with the use of digitalis in auricular fibrillation, but his work is very carefully and systematically done in order to get light on it. In getting heart-block in such a case one must not too quickly draw the conclusion that the patient has a complete lesion of the His bundle and that ineradicable damage has been done by the digitalis. I do not believe with those who think that one can have symptoms of complete or severe disease of the His bundle without any disease at all. I reported a few years ago a case where there were severe symptoms without complete degeneration, then had Stokes-Adams symptoms and remained with permanent heart-block for two years. I believe there is a great deal in large doses of strychnia. The man I mentioned with Stokes-Adams disease was able to do his work for two years with his pulse always below thirty and died suddenly one night while washing his hands. During that time he was always perfectly well, provided he was taking his one-twentieth of a grain of strychnia. If he went without it his pulse would intermit for one-fourth of a minute.

DR. TAUSSIG: Dr. Hare's warning in regard to the use of digitalis in partial heart-block was entirely justified, but hardly appeals to these cases with auricular fibrillation. In auricular fibrillation there is no way of telling whether a lesion of the bundle of His exists, unless from the great slowing of the ventricle. In these cases, for instance, there was no possible way of telling whether the bundle of His was impaired in its conductivity, except by digitalis adminstration. You can get results in ordinary heart-block. In auricular fibrillation you could not expect such a result because there is no way in which the digitalis could possibly slow the fibrillating auricle.

CLINICAL AND PATHOLOGICAL OBSERVATIONS ON SUBACUTE BACTERIAL ENDOCARDITIS.

DR. B. LIBMAN, New York: During the course of a study of eighty-nine cases of subacute bacterial endocarditis (so-called chronic malignant endocarditis) evidence was obtained that persons with this disease can spontaneously overcome their infection and that the lesion on the valves may heal in part or entirely. Altogether we have observed eleven times bacteria-free healing or healed lesions of subacute bacterial endocarditis. The cases in which we have found bacteria in the blood and which we could follow up, all succumbed. In one case of influenzal endocarditis the bacillus was found five times in the blood. Four later cultures were negative, and the patient died within a few months. There was unfortunately no autopsy. It is remarkable then that there should be so many cases in which the bacterial infection is overcome without its being discovered. The explanation that seems the most likely is that in such cases the bacterial infection is of short duration, and the patient does not feel sick enough to see a physician, and that, if he does, he is not put to bed. The patients who overcome their infections before we see them present at least four clinical pictures: (1) They develop a chronic nephritis and die of uremia. (2) They present the clinical picture of "chronic endocarditis with fever." (3) This group presents a clinical picture that seems to have been entirely overlooked. They develop a remarkable brown color of the face (to which I wish to draw particular attention), sternal tenderness, palpable spleen, slight temperatures, and the evidences of a valvular lesion. The subsequent course of such cases is unknown. They have a valvular lesion with marked anemia and die from exhaustion alone or combined with decomposition. Whether cases can recover entirely and have only the valvular lesion which they had before they were affected by subacute bacterial endocarditis, can be determined only by further studies and possibly by complement-fixation tests.

DISCUSSION.

DR. JAMES B. HERRICK, Chicago: I am reminded of a paper which I read here ten years ago in which I spoke of recovery of one case of endocarditis and in which I collected from the literature other instances. Since that time it has been my fortune to see quite a number of cases of this subacute type of ulcerative endocarditis which Dr. Libman has seen so frequently. I have never seen another case recover. I have seen death postponed for nine or ten months, but I have never yet seen a case recover.

DR. GEORGE DOCK, St. Louis: The increase in tropical diseases has added a new feature in regard to the practical diagnosis of these cases. Formerly all these cases were considered malarial by somebody in the course of their existence, but now that there is so much access to the tropics and so much more is known about the tropical affections these cases of endocarditis are diagnosed not only as malaria but as Malta fever and various parasitic diseases of the blood.

DR. E. LIBMAN, New York: We have made a limited number of studies as to the value of transfusion in these cases, and thus far all I can say is that the transfusion strengthens the patient and gives him a longer time to fight, but I have hitherto seen no direct curative result.

ACUTE RHEUMATIC FEVER AND THE ARTERIES.

DR. OSKAR KLOTZ, Pittsburgh: There appears to be a fairly definite form of arterial disease which is associated with rheumatic fever in its different stages. The arteries react to the irritant in the form of a true inflammation and this reaction is to be observed in the adventitia and the outer portion of the media. In the acute stages the inflammatory exudate is of the non-suppurative variety in which the lymphoid cells are the most prominent, the lesions involving chiefly the smaller arteries, the larger arteries being damaged chiefly by inflammation which travels along the vasa vasorum. The fixed tissues in the neighborhood of the small arterioles are damaged or even destroyed but abscesses are not formed. In the aorta and heart the destruction involves chiefly the muscle and elastic elements. In the early stages the intima is affected by a slight superficial fatty change and in the chronic stage it proliferates, giving rise to a nodular endarteritis. The repair following the inflammatory process of the media and adventitia is by

fibrous tissue. Thus the aorta in chronic rheumatism is disturbed by a patchy fibrosis, or chronic productive mesaortitis, and has, therefore, lost much of its elasticity and may become subject to diffuse dilatation.

ON THE CLINICAL ANALYSIS OF SOME DISTURBANCES OF THE AUTONOMIC NERVOUS SYSTEM, WITH COMMENTS UPON THE SO-CALLED VAGOTONIC AND SYMPATHECOTONIC STATES.

Dr. Lewellys F. Barker, Baltimore, and Dr. F. J. Sladen, Baltimore: The authors reported eighteen cases in which they have analyzed the symptoms referable to disturbances of the autonomic system. The report was illustrated by a lantern-slide demonstration. The term autonomic is used in the sense of Langley to include all efferent conduction paths other than those innervating voluntary (striated) muscle. The autonomic nervous system includes, therefore, all the paths going to smooth muscles and secreting glands, and embraces both the sympathetic nervous system and the so-called cranio-sacral autonomic system. The paths between the cerebrospinal axis and the periphery are constructed of at least two neurones, a proximal one with a medullated preganglionic fibre, and a distal one with a non-medullated postganglionic fibre. The connection between the two neurones can be functionally interrupted at the synapse by nicotin. Continuous innervations exist, during life, in each of the two systems, and, normally, the regulation of the reciprocal antagonists is such that a sort of equilibrium is maintained as a resultant of the tonus in both systems. How this tonus is maintained is not known. It seems probable that both neural and clinical influences play a part. In eighteen cases analyzed at the Johns Hopkins Hospital the authors have been surprised at the enrichment of the clinical histories which followed the study of patients by the methods of analysis of the autonomic system. Among these eighteen cases there were some who were predominantly vagotonic; others who were predominantly sympathecotonic, and in many of the cases signs of over-activity in each of the two systems were met with — so-called mixed states. Among the clinical signs pointing to excessive tonus in the cranio-sacral system may be mentioned the following: (a) Mid-brain portion: Contracted pupil, accommodation spasm, wide lid-slits, von Graefe's sign; (b) Hind-brain portion: Salivation, lacrimation, bradycardia, slowed conductivity of vagal origin in the His bundle, pulsus irregularis respiratorius, vasomotor anginal attacks, hypotension, bronchial asthma, irregular types of breathing, laryngeal crises, inactive gag reflex, hyperacidity and hypermotility of the stomach, cardio-spasm and pyloro-spasm, spastic constipation or nervous diarrhœa; (c) Sacral portion: Spasm of the anal sphincter, dysuria, due to spasms of the detrusor of the bladder, and certain genital phenomena; (d) General: Sweating, eosinophilia, pigmentation, increased carbohydrate tolerance, excessive reaction to pilocarpin, absence of adrenalin glycosuria. The cases upon which this study is based will be published in full later on. That the conception of vagotonus is in accord with earlier therapeutic discoveries, and may help to guide us to a rational therapy in many cases, is illustrated by the well known effects of atropin upon spasms (*e.g.* in bronchialasthma, in hyperacidity, in ulcer of the stomach, in gastric crises, etc.). The good effects of atropin in vagus inhibition of the heart, and in sweating, are well known. The effects of epinephrin upon bronchial asthma, biliary colic and the diarrhœas of Basedow's and Addison's diseases, are also easily understood in the light of this generalization. Such studies, taken together with those of Head, and of Eppinger and Hess, it is hoped may prove helpful in leading gradually to a well-defined special pathology of the nerves of the viscera.

DISCUSSION.

Dr. S. Solis-Cohen, Philadelphia: This admirable exposition confirms some observations of my own. Dr. Barker has extended these observations and made some others. I have recently changed the title under which I placed my cases from vasomotor ataxia to vasomotor autonia. I would like to emphasize the fact that these phenomena are largely ataxic. In my first paper I divided them into spastic, paretic and mixed and the mixed group is the largest one we see clinically. Graves' Disease is the largest group of pure paretic diseases. Raynaud's Disease when pure is an example of the non-paretic. But even in Graves' Disease, as I have shown by cases already published and cases on file, the phenomena are frequently mixed and we will find the sympathetico-tonic and the vago-tonic type mixed in certain cases of apparently extreme types of the nervous system.

Dr. L. B. Wilson, Rochester: This address of Dr. Barker's has been particularly interesting to me in connection with some work by Gley. We have been repeating the work of Gley of the University of Paris consisting of the injection into the vascular system of dogs of extracts of human thyroids during the last three or four months and I need only say that we have been able to corroborate it. Gley has been able not only to produce a fall in blood pressure by injection of thyroid extract but also to inhibit the vagus. He has succeeded in doing this only by the injection of fluid from exophthalmic goitres.

STUDIES ON THE PERIPHERAL PULSE.

Drs. A. W. Hewlett, J. C. Van Zwaluwenburg, and J. H. Agnew: This study of the volume of the pulse was made in the arm when the venous outflow was momentarily obstructed by a suitable pressure cuff. In a normal young individual during exposing to cold the main portion of the blood enters the arm during the primary systolic pulse wave, while during the remainder of the pulse period little if any blood enters the arm. When the individual is comfortably warm the primary wave is increased in size and most of the blood enters with this wave. When the individual is uncomfortably warm the primary wave remains large but the inflow is rapid throughout the whole pulse period. This seems to be due to a relaxation of the finer arterioles. When nitroglycerin is given in medicinal doses the primary wave is maximal whether the individual is exposed to heat or cold. In the latter case there is a marked reflux wave immediately following the primary wave. This is due to a relaxation of the main arteries.

To be continued

Book Reviews.

Direct Laryngoscopy, Bronchoscopy, and Esophagoscopy. By DR. W. BRUENINGS. Translated and edited by W. G. HOWGARTH, M.A., M.B., B.C., Cambridge; F. R. C. S., England. New York: William Wood and Company. 1912.

This book of 370 pages is the latest authority on bronchoscopy and esophagoscopy from the European standpoint. Bruenings may be said to have taken charge of this special department of Killian's work. Starting with Killian's armamentarium and technic, he elaborated, extended, and added to it, so that most of the instruments and apparatus here described are of his own devising. In Europe Bruenings represents progress in bronchoscopy to such an extent that a book devoted to himself nearly covers the whole field. It does not take quite the same place in America, because here the art has been developing with somewhat different apparatus. The American system, as it might be called, is represented by the technic of Jackson, and differs especially in the lighting of the field. Bruenings always lights his tubes from the outer end. He condemns in very few words the distal lamp, because the rays of light are not parallel and because the lamp sometimes becomes drowned in secretion. Both are true but often unimportant. Bruenings' apparatus is frequently used in this country in cases where either of these considerations apply, but few Americans believe that for routine work it will supplant the internal light. But most of the book is of equal value to one who uses the instruments more commonly found in this country. The author accomplishes much with local anesthesia, an art in itself, on which much depends, but which may be carried to the point of danger. In speaking of general anesthesia, he says that in a certain sense it should only be used by one who can dispense with it. He is rather liberal in the proportion of cases in which he considers that tracheotomy might be justified, and points to the sometimes greater dangers of anesthesia, prolonged operating, and lack of skill. A striking feature of his instruments made possible by the external light, is their extensibility, the tubes being elongated by the insertion of a smaller tube held with a watch spring and the forceps by a similar but more elaborate fixture. The differences in technic which arise from the use of the somewhat different instruments are not sufficient to seriously cripple the book as a thorough and altogether satisfactory text-book. With these exceptions the reader will find in it all that could reasonably be expected to appear in a thorough description of the science and art of direct examination and treatment of the larynx, bronchi and esophagus. It codifies the experience, cautions, and hints of a master in the art, and is the only real text-book on the subject in the English language, since Jackson's manual five years ago. The English translator and editor has done his share in the work very well. A certain amount has been subtracted from and added to the original German edition, under direction of the author, with the result that the different parts of the general subject are all clear, concise and thorough.

The Surgical Clinics of John B. Murphy, M. D., Mercy Hospital. Volume I, numbers 1 to 4. Philadelphia and London: W. B. Saunders Company. 1912.

These publications aim to present, essentially verbatim, with dialogue, comment, and discussion, a series of surgical cases as shown by the author in clinic before his class. Aside from the material demonstrated, their chief claim to original merit is in the method of presentation employed. This method has the advantage of reproducing, with considerable vividness, the actual *viva voce* scene in the operating amphitheatre. Inevitably it has also the disadvantage of inconclusiveness and of preserving at times the unessential details, the repetitions, the colloquialisms and inaccuracies of phrase, which are quite pardonable in speech but which it is usually supposed to be the business of careful literary art to eliminate even from scientific writing. Of the actual value of the material and of its discussion there can be no question. Whether the advantages of this modified form of case teaching outweigh the disadvantages of its unedited, stenographic manner of presentation is a question that can be better decided after the individual reader has become familiar with the novelty of a style which seeks to secure the ease and verisimilitude of oral instruction by the inclusion even of irrelevant minutiae.

Roentgen Literature. Part II: Index of Topics. Edited by DR. HERMANN GOCHT. Stuttgart: Ferdinand Enke. 1912.

This volume, complimentary to the author's previous alphabetical index of authors' names, aims to collect and record topically the principal recent results of Roentgen research. This is done under the sub-headings of books and reports, physics and technic, diagnosis, treatment, and medico-legal aspects. The work, containing about 4500 references, is a monumental example of Teutonic industry and thoroughness.

A Pocket Formulary. By E. QUIN THORNTON, M.D. Tenth Edition. Revised. Philadelphia and New York: Lea and Febiger. 1912.

This volume, complementary to the author's "Materia Medica," reviewed in the issue of the JOURNAL for Dec. 28, 1911. (Vol. clxvi, p. 992), will recognize this pocket formulary as an embodiment of its practical application. It is arranged alphabetically by diseases, from abrasions to yellow fever, and contains brief statement of the indications for nearly every prescription. It should be of great convenience to the general practitioner.

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THE STATUS OF MEDICAL EDUCATION IN AMERICA.

THE status of medical education is always a subject of vital concern to physicians. In the issue of the JOURNAL for June 20, 1912, (Vol. CLXVI, p. 939), we commented editorially on the contrasted conditions of medical education and practise in Europe and in America, as presented by Dr. Abraham Flexner in the reports of the Carnegie Foundation for the Advancement of Teaching. The recently published second volume of the report of the United States Commissioner of Education for the year ended June 30, 1911, containing in complete form the statistics of education in this country during that year, includes a brief but impressive chapter on medical schools.

During 1911 the number of medical schools in the United States decreased from 135 in 1910 to 122, chiefly on account of discontinuance and mergers. There was also a decrease in the number of medical students from 21,394 in 1910 to 19,146 in 1911. This latter decrease the author of the report believes "due probably far more to raised requirements for admission than to disappearance of schools." It is interesting to note, however, that during the same period the number of pupil nurses in professional schools, excluding those in hospitals for the insane, also decreased from 26,511 to 25,118.

In general it appears that there is a "continuance of progress in the direction of higher standards of general education required for admission to the study of medicine." A few medical schools now require a bachelor's degree for admission to regular standing. Twenty-eight in 1911 required for admission a minimum of two years of work in a standard college of liberal arts, ten required one year of such work, and four announced the requirement of one year of college work, the requirement to become effective in 1912. In spite of this tendency towards improvement, the author of the report points out that "the difficulties experienced by some of the medical colleges which desire to establish and enforce high standards for admission and graduation are increased by the varying requirements of state statutes and state boards of medical examiners for candidates for license to practise medicine within such states. There is a great and almost vital difference between requiring of candidates graduation from a 'chartered' medical school, and requiring graduation from a reputable or 'approved' medical school." Here again the ancient and traditional doctrine of states' rights stands in the way of the establishment by federal authority of a uniform national standard for registration in medicine.

The additional requirement of a fifth year of medical study, to be spent chiefly in hospital work, seems bound to come in time, as it has in many European schools. The college of medicine and surgery of the University of Minnesota established such a course a year ago, and Columbia University has practically announced its intention of making a similar change in the curriculum of the New York College of Physicians and Surgeons. This change would really involve providing for all what the majority of better men now take,—at least a year of hospital interneship following their graduation from a medical school. Naturally it must come first in those schools which control their own or other hospitals sufficient to provide places for all their students. Under such control the appointment to hospital positions must rest in the hands of the school, and the year's period of service could probably thus be made more varied and therefore presumably better suited for the training of the prospective general practitioner. With the slow development of this system, and the consequent shortening of the usual present period of house officers' service, there will doubtless spring up in this country, as abroad, the position of salaried hospital resident, to be filled for a term of from one to three years by those who wish to pursue their medical training still further. Every medical student will then have the benefit of a house officer's service, and the more select minority will continue their experience as residents. Apparently in most

American sociologic evolution the privilege of the few in one generation becomes the right of all in the next.

In connection with these increasing requirements and standards for medical education in this country, and the consequent decline in the number of medical students, it is interesting to compare a British opinion of the similar change which has occurred somewhat earlier in England. An editorial in a recent issue of the London *Morning Post* says on this subject:

"Several factors contribute to the growing unpopularity of the medical profession. The principal general cause is undoubtedly the higher standard demanded as a result of the advance in medical science. The change in the curriculum from four to five years is within the recollection of most of these who have taken an interest in medical education, and has meant an increase in the cost of training of £150, with the result that many of those who would have entered the medical schools have been diverted into other channels. That is not all. At the recent Congress of Universities both Sir George Gibb and Sir Albert Spicer emphasized the importance of a university career as an avenue to business, and there is no doubt that the recent activity in business has resulted in inducing parents, who might have arranged that their sons should qualify in medicine, to give them a university education with a view of preparing them for administrative positions in commerce.

"There is, moreover, no doubt that the insurance act has exercised a very adverse effect on the medical profession. The drop in the number of entries from 1495 in 1910 to 1232 last year is almost, if not quite, unprecedented, and in the absence of any other explanation must be attributed to the uncertainty that has been introduced by the act. This shortage in medical students is perhaps the most convincing evidence that the opposition of medical men to the act is due to professional rather than political objections. Medicine is largely recruited from the sons of doctors, and while a man might conceivably be induced to refuse service under the act on political grounds, it is not conceivable that he would forego entering his son for the profession on the ground of politics. The fact that has to be faced by the community and the government alike is that the ordinary remuneration and the prizes of the medical profession are no longer sufficient to attract men enough. It is with this situation in front of them that the government has decided to try to throw an enormously increased burden on the profession. They have suggested terms which have resulted in uniting the profession in the most strongly resistant attitude that they have ever adopted in the course of their history."

Happily the status of medical education in the United States is not yet affected as in Great Britain by a national insurance scheme. The experience of the profession in England, however, should serve to remind us in our zeal that there may be limits beyond which it may not be wise or profitable to raise the requirements and cost of medical education in this country.

THE CONSERVATION OF VISION.

AMONG the numerous factors in modern civilization tending to impair the human vision is bad lighting. Insufficient illumination is pernicious; at least equally so is too intense light. An organ exercised well within its limits increases *pari passu* in power and facility; while an overworked organ becomes progressively less and less able to do any work at all. One habitually using his eyes in strong light decomposes his visual purple faster than it can be regenerated.[1] Even healthy eyes are strained by overuse, especially under unfavorable conditions and in lowered health; and as most eyes are abnormal, or at least not normal, the individual must cope not only with a bad environment and impaired health, but also with his inherent optical defects. With the development of the many modern methods of commercial lighting (by gas and electricity) the composition of light as well as its intensity, have become important for the ophthalmologist to consider.

In the days of oil and candle light the question was simply one of quantity, the quality being soft and benignant. But modern lighting, whether gas or electric, is often so intense as to be extremely fatiguing and worse. These latter day means of illumination also contain many more of the violet and ultraviolet rays of the spectrum, which are useful in phototherapy and in radiography, but are certainly amiss for illuminating the printed page or the object upon which the artisan must work. Lights sufficient to tan and sunburn the skin, and perhaps to produce baldness, are no doubt responsible for much of the present day asthenopia. Nor can one doubt the pernicious effect of such illumination on the deeper optic structures. Certain it is that stokers, glass blowers and the like, who are constantly exposed to very intense light and heat, have an increased liability to cataract. Illumination made up of the red and yellow rays of the spectrum is best for visual purposes; and the problem of securing a light which shall

[1] Alger, E. M.; The Conservation of Vision. Mass. Soc. Illuminating Experiences. December, 1911.

allow the maximum of efficiency, comfort and convenience is one for the illuminating engineer rather than the physician; though mutual consultations are imperative.

The importance of the matter is enhanced by the consideraton that eyes are not merely optical adjuncts, but are integral parts of the body; they affect the functioning of most other organs, and are in turn affected by them; inefficient eyes cause most chronic headaches, much depression and fatigue, many indigestions, perhaps even the aberrations of genius. In this relation we note with gratification the visit to this country of Mr. Leon Gaster, the founder and secretary of the Illuminating Society of England, and editor of the *Illuminating Engineer*. Mr. Gaster is engaged in a propagandum for the better lighting of places of business, factories, schools and homes; in order especially that working people and school children shall have their eyes safeguarded from strain and their bodies from accident by reason of bad lighting. It is especially urged that the light shall be sufficient; that it shall not glare; that it shall cast no shadow upon the thing worked upon or the page read; and shall be so disposed as to fall upon the material or the page, and not into the eyes of the artisan or the reader. It would seem that while America is the pioneer in illuminating engineering, we are behind other countries in our regulations for obtaining the salutary conditions just mentioned; and Mr. Gaster commends especially the appointment by the French government of a committee of physicists, oculists, engineers, physiologist and factory inspectors, the main objects being: To study, from the standpoint of general health and its effects upon vision, the various methods of artificial lighting now in use. To determine the composition and quality, from a hygienic standpoint, of the different combustible illuminants, and to examine the effect of the prejudicial gases and the amount of heat developed thereby. To fix a certain minimum amount of artificial illumination favorable to the normal requirements of vision. To study the most practical methods of measuring illumination. To formulate recommendations governing the best means of applying customary methods of lighting to the chief varieties of industrial operations. To present to the ministry a report on the subject of short sight and impairments of vision, and on the best methods of guarding against the causes of myopia.

MEETINGS OF THREE SCIENTIFIC SOCIETIES.

DURING the current week there are being held in the United States the meetings of three important scientific societies.

The first of these is the American Electro-Therapeutic Association, whose twenty-second annual convention took place at Richmond, Va., on Tuesday, Wednesday, and Thursday, Sept. 2, 3, and 4. The presidential address, on "Some Modern Aspects of Electrotherapeutics," was made at the first day's session by Dr. William D. McFee, of Haverhill, Mass. Among the papers read at subsequent meetings may be mentioned those on "Mechanical Vibration Therapy, Exercise Therapy, and Apparatus," and the "Treatment of Splenic Affections by Diathermy and the X-ray," by Dr. Fred H. Morse, of Boston, and that on "Lessons from Failures," by Dr. F. Howard Humphris, of London, vice-president of the association.

The second society is the Medical Society of the Missouri Valley, whose twenty-fifth annual meeting is to be held on Sept. 5 and 6 at Council Bluffs, Iowa, under the presidency of Dr. J. M. Bell, of St. Joseph. The surgical and the medical orations are to be given respectively by Dr. Henry T. Byford, of Chicago, and by Dr. W. O. Bridges, of Omaha.

The Eighth International Congress of Applied Chemistry held its opening session on Sept. 4 in Washington, D. C., and will hold its concluding session on Sept. 13, at New York. An attendance of about 60 delegates from all parts of the world is expected. This congress meets triennially, the session of 1909 having been held in London. The present congress, which is the first of its kind in this country, is divided into 24 sections, each meeting ten times. The program includes an address by the eminent British chemist, Sir William Ramsay, and a lecture by Dr. Ira Remsen, of Baltimore.

"There will be a report on the unification of methods of food analysis, unification of terms for reporting analytical results of soils, fertilizers and ash; standardization of analytical methods to be applied to resins; standardization of tests for the stability of explosives; the establishment of central bureau for fermentation organisms; greater uniformity in the commercial supplies of potent drugs and the means for determining the same; approximation in the pharmacopœias of the world to common standards of activity."

These topics indicate the width of range of this congress, and the importance of the bear-

ing which applied chemistry may have on medical science.

OPENING OF THE PUBLIC SCHOOLS.

THE current week marks the reopening of the public schools, not only in Boston, but in most cities and towns of the United States. As in the gathering of all other large human aggregations, the assembly of schoolchildren has various important bearings on the general hygienic welfare of the community. The schools afford means not only for the statistical study of certain of the common diseases of adolescence, but also for effective education in hygienic topics. The schools constitute, likewise, a favorable culture-medium for the extensive development of certain of the infections. In the effort to prevent this, it is planned this year in Boston to segregate, at the beginning of school, all children showing signs of any infectious process. To this end a thorough physical examination of all public school pupils is being made this week by the medical examiners. Similar procedure is reported from Springfield and Chicopee and other Massachusetts towns. By these measures it may be hoped to minimize the increase of the infectious diseases of childhood, which usually follows the opening of schools.

MEDICAL NOTES.

AWARD OF THE LENVAL PRIZE.—At the recent meeting in Boston of the Ninth International Otological Congress, the Lenval Prize was awarded to Dr. George E. Shambaugh, of Chicago, "for his work on the anatomy and physiology of the labyrinth." The foundation and terms of this prize were described in an editorial in the issue of the JOURNAL for Aug. 8, 1912, [Vol. CLXVII, p. 206].

EXTERMINATION OF FLIES IN WASHINGTON.—Report from Washington, D. C., states that during the past months of July and August 20,000,000 flies have been killed in that city by children in competition for the prizes offered for fly extermination.

A MEDICAL SCHOOL ALLIANCE.—The recently published catalogue of the College of Physicians and Surgeons of Baltimore announces the opening of the 41st annual session of this institution on Oct. 1. An alliance has been effected whereby students of the medical department of West Virginia University are awarded advanced standing in the Baltimore college.

A SCOTCH CENTENARIAN.—Mrs. Peter Drew, who died last month at Helensburgh, near Glasgow, Scotland, is said to have been born in 1811 at Troon, near Ayr, on the Firth of Clyde. Her health was always excellent, and until within a few weeks of her death she had maintained an active interest in social, literary, and political affairs. She had been a widow since 1877.

GIFTS TO A MEDICAL MUSEUM.—The recently published annual report of the museum committee of the Royal College of Surgeons, England, states that the executors of the late Lord Lister have recently presented to the museum a valuable collection "comprising Lord Lister's surgical instruments, appliances used in his early researches, records and tracings of his experiments, drawings and pathologic specimens. Another collection of surgical instruments, formerly the property of the [London] Obstetrical Society, has been presented by the Royal Society of Medicine.

A CENTENARIAN.—Melissa Houston, a full-blooded Kiowa Indian squaw, who died last week at Anadarko, near Lawton, Okla., was locally reputed to be 115 years of age. She had been for many years a widow and totally blind.

CENTENARIANS AND MATRIMONY. — Report from Paterson, N. J., states that on Aug. 28 Timothy Griffin, a negro of that city, who is alleged to be 108 years old, was married to a woman of 73. The two are said to have been brought up together as slaves on the same plantation in North Carolina before the war. The bridegroom's attitude towards matrimony evidently differs from that of Frank Baccus, a negro inmate of the State Hospital at Reno, Nev., who is said to have been born on Aug. 30, 1790, at St. Genevieve, Mo., and celebrated last week his supposed one hundred and twenty-second anniversary. Baccus is in excellent health and ascribes his vigor and longevity to the fact that he has remained always celibate.

NEW YORK.

THE FLY AS A DISSEMINATOR OF UNCINARIASIS.—Report from Bowling Green, N. Y., on Aug. 29, avers that the state bacteriologist, Dr. Lillian H. South, has found hookworm eggs adherent to the abdomina and legs of flies from regions infected with this parasite, and therefore concludes that the fly is a factor in the dissemination of uncinariasis.

Prevention of Procreation Among the Defective.—Report from Albany states that on Aug. 26 Governor Dix announced the appointment of Dr. Charles H. Andrews, of Buffalo, Dr. Lemon Thompson, of Glens Falls, and Dr. Charles C. Duryea, of Schenectady, as members of the board, established last year by the Bush bill, to examine the feeble-minded, criminals, and other defectives, with a view to determining upon the legitimacy of their surgical sterilization.

"The examiners are empowered to examine into the mental and physical condition, the record and family history of the feeble-minded, epileptic, criminal and other defective inmates in the State hospitals for the insane, State prisons, reformatories and penal institutions, and one of its members is authorized 'to perform such operation for the prevention of procreation as shall be decided by the board to be most effective.' Only criminals convicted of such offences against the criminal law as convince the board that they are subject to 'confirmed criminal tendencies' come within the operation of the law."

Harvey Society Lectures.—The following provisional program of lectures, subjects and dates for the season of 1912-13 has been arranged:

1912.

Oct. 5. Prof. Max Rubner, University of Berlin, "Modern Steam Sterilization."

Nov. 9—Prof. Joseph Erlanger, George Washington University, "The Localization of Impulse Initiation and Conduction in the Heart."

Nov. 23—Prof. G. N. Stewart, Western Reserve University, "The Rate of the Blood Flow and the Vasamotor Reflexes in Disease."

Dec. 14—Prof. F. B. Mallory, Harvard University, "The Infectious Lesions of Blood-vessels."

1913.

Jan. 18—Maj. J. J. Russell, U. S. A., "The Prevention of Typhoid Fever."

Feb. 15—Prof. Theodore C. Janeway, Columbia University, "Nephritic Hypertension: Clinical and Experimental Studies."

March 1—Prof. Edward G. Conklin, Princeton University, "The Size of Organisms and Their Constituent Parts in Relation to Longevity, Senescence and Rejuvenescence."

March 22—Prof. John Howland, Johns Hopkins University, "The Scientific Basis for the Artificial Feeding of Infants."

Poliomyelitis in Buffalo.—The epidemic of poliomyelitis at Buffalo, noted in last week's issue of the Journal, continues to spread. Report on Aug. 28 states that up to that date 180 cases with 22 deaths of the disease have occurred in the city. There has been established a rigid quarantine over every house where the infection has appeared.

New York and New England Association of Railway Surgeons.—The Twenty-second annual session of the New York and New England Association of Railway Surgeons will be held at the Hotel Astor, New York City, on Wednesday, November 15, 1912. A very interesting and attractive program has been arranged. Dr. John B. Murphy, of Chicago, will deliver the "Address in Surgery." Railway surgeons, attorneys and officials and all members of the medical profession are cordially invited to attend. The president of the Association is Dr. Walter Lathrop, of Hazelton, Penn., and the corresponding secretary, Dr. George Chaffee, of Brooklyn, N. Y.

BOSTON AND NEW ENGLAND.

A Centenarian.—Mrs. Lucy W. Purington, who died last week at West Bath, Me., is said to have been born on Aug. 16, 1811.

Typhoid Fever in Springfield.—Report from Springfield, Mass., on Aug. 31 states that the total number of cases of typhoid fever in that city during the month of August was 25. The number of cases of the disease in July was only 13. All of these infections are believed to have been sporadic, none having been traced to a common source of origin.

Reabolition of the Dip Tank.—In Chapter 448 of its revised statutes for 1912, the Massachusetts legislature restored to local boards of health their power of making regulations to secure cleanliness in the exposure and sale of food-stuffs, provided such regulations are approved by the state board. Under this act will be revived the so-called dip-tank regulation, prohibiting the use of such receptacles in the sale of milk.

Boston Mortality Statistics.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Aug. 24, 1912, is 214, against 205 the corresponding week last year, showing an increase of 9 deaths, and making the death rate for the week 15.50, against 15.52. Of this number 106 were males and 109 were females; 211 were white

and 3 colored; 145 were born in the United States, 68 in foreign countries, and 1 unknown; 39 were of American parentage, 153 of foreign parentage, and 22 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 17 cases and 0 deaths; scarlatina, 10 cases and 0 deaths; typhoid fever, 19 cases and 1 death; measles, 27 cases and 0 deaths; tuberculosis, 59 cases and 20 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 14, whooping cough 2, heart disease 32, bronchitis 0. There were 16 deaths from violent causes. The number of children who died under one year was 62; the number under five years 79. The number of persons who died over sixty years of age was 46. The deaths in hospitals and public institutions were 94.

Deducting the deaths of non-residents, the total is 187. The corrected death-rate is then 13.54.

Cases of infectious diseases reported to the Boston Board of Health for the week ending Aug. 27, 1912, are: Diphtheria, 16; scarlet fever, 12; typhoid fever, 18; measles, 33; tuberculosis, 59; smallpox, 0.

The death-rate of the reported deaths for the week was 14.27.

Current Literature.

MEDICAL RECORD.

AUGUST 24, 1912.

1. GRAVES, W. W. *On the Clinical Recognition of Syphilitics.*
2. CRUICE, J. M. *The Importance of History in the Diagnosis of Incipient Tuberculosis.*
3. *HELD, I. W. *Coronary Sclerosis with Special Reference to Gastric Symptoms.*
4. SLOAN, T. G. *The Medical Supervision of School Children in South Manchester, Conn.*
5. BEATTY, G. W. *Orgyia Leucostigma—A Factor in the Causation of Ophthalmia Nodosa.*
6. VON OEFELE, F. *Phosphoproteins in Diet.*

3. Held writes a paper on angina pectoris, reporting two cases of his own and three autopsies which he saw in Berlin. He lays particular stress on the gastric symptoms of this disease. These are most marked after eating—pressure and fullness in the epigastrium, slight dyspnea and even orthopnea. Nausea is frequent but vomiting rare. In the treatment it is important to avoid overloading the stomach and to give easily digestible, non-fermentable food in small quantities at frequent intervals. An exclusive milk and vegetable diet is often advisable for a while. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

AUGUST 24, 1912.

1. WRIGHT, J. *The Inheritance of Acquired Characters.*
2. BROWN, S. H. *Health Conditions in the Canal Zone.*
3. WALSH, J. J. *The Fee Book of an Irish Physician of the Seventeenth Century.*
4. BORDEN, W. C. *A History of Surgical Hemostasis.*
5. *WILLIAMS, B. G. R. *Some Experiences with the Lessilur-Prirey Test.*
6. MERRIAM, L. A. *A Poisoned Blood Stream.*
7. STEINHARDT, I. D. *Ten Sex Talks to Girls.*
8. FRIEDMANN, J. *The Technique of Radiography.*

5. Williams is enthusiastic over his experience with the Lessilur-Prirey test for sputum. His technic is as follows: In a large test tube five drachms of physiological salt solution, five cc. of sputum and five drops of acetic acid are shaken for five minutes. The mixture when homogeneous is filtered and the filtrate is tested for serum albumin by any one of the ordinary methods. The writer prefers the sulpho-salicylic acid test. He believes that a positive albumin reaction in a sputum where the disease is not acute points very strongly to the presence of pulmonary tuberculosis. The test is of little value in differentiating acute bronchitis or pneumonia from galloping consumption. The reaction may be positive in pulmonary edema of renal or cardiac origin, also in bronchiectasis and gangrene; it is never positive in chronic bronchitis. The reaction seems to be present as early as tubercle bacilli are loosed into the sputum and in some cases earlier. The test, though essentially a chemical one, is subject to bacteriological precautions. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

AUGUST 24, 1912.

1. MELTZER, S. J. *The Training of the Desirable Practitioner and His Mission.*
2. DODSON, J. M., *The Addition of a Fifth Year to the Medical Curriculum.*
3. LEOB, L. *The Relation Between Practitioner and Investigator in Medicine.*
4. HORSELEY, J. S., AND COLEMAN, C. C. *Experimental Devascularization of Segments of Intestine With and Without Mechanical Obstruction.*
5. RAVOGLI, A. *The Injurious Effects of the X-ray as a Therapeutic Agent.*
6. TRIMBLE, W. B. *Observations on Keratosis Follicularis, With Report of Five Cases in the Same Family.*
7. SIMPSON, F. E. *Keratodermic Blennorrhagia, with Report of a Case.*
8. *FINDLEY, P. *Appendicitis Complicating Pregnancy.*
9. STURTEVANT, M. *Care of Scarlet Fever Patients.*
10. DEFER, J. B. *Nephritis in Pregnancy.*
11. WAKEFIELD, W. F. B. *A Plea for More Careful Technic in Doing Intrapelvic Reconstruction Work.*
12. GEYERMAN, P. T. *A New Bone-plate.*
13. FERIS, H. J. *Salvarsan in Pregnancy.*
14. OLOMDORF, C. P. *Disappearance of Angioneurotic Edema After Appendectomy.*

8. Findley analysing fifteen cases of appendicitis complicating pregnancy observed the following interesting phenomena. In all but one of the fifteen cases there had been previous attacks. Six cases were mild attacks in which all the patients recovered without interruption of pregnancy. Ten were severe attacks in which seven patients recovered and three died. The attacks occurred in labor in one case, in the puerperium in five, and in pregnancy in nine cases. The five cases occurring in the puerperium were of unusual severity. Two patients died of septic peritonitis and one of bronchopneumonia. In the majority of cases the attack occurred in the early months of pregnancy. In no instance was the pregnancy interrupted by the removal of the appendix. The author concludes that pregnancy probably has no influence in creating a primary attack of appendicitis but has a very great influence in creating renewed attacks. [E. H. R.]

ANNALS OF SURGERY.

JUNE, 1912.

1. TAYLOR, W. J. *General Infection Following Acute Tonsillitis.*
2. LUSK, W. C. *A Thoracic Aneurysm Treated with Gold Wire and Galvanism.*
3. *MORRIS, R. J. *Adhesions of the Upper Abdomen.*
4. *MACCARTY, W. C., AND J. M. BLACKFORD. *Involvement of Regional Lymphatic Glands in Carcinoma of the Stomach.*
5. MUMMERY, P. L. *Congenital Absence of Cecum and Ascending Colon.*
6. *MOSCHCOWITZ, A. V. *Prevascular Femoral Hernia.*
7. NASSAU, C. F. *Observations on the Radical Cure of Hernia.*
8. DAVIES, H. M. *The Value of Arteriovenous Anastomosis in Gangrene of the Lower Limb.*
9. ALEXANDER, E. G. *Fracture of the Radius Above the Attachment of the Pronator Quadratus Muscle.*

1. Morris in again considering "cobwebs in the attic of the abdomen" distinguishes between embryonic derelicts and post-natal inflammatory defects. Absorption of the latter may be prevented by renewed inflammatory process with the establishment of a vicious cycle, faulty digestive functioning allowing toxic impression to be made upon the peritoneum of the upper abdomen is subject to still further derangement through the mechanical influence of acquired adhesions later. Symptoms resulting from upper abdominal adhesions may readily be confused with other conditions. The degree of adhesion formation cannot be foretold by the symptoms. The periodicity of symptoms is quite as well marked in simple adhesion cases as it is in cases of ulcer of the duodenum.

4. The article is a study of 200 specimens resected or excised from carcinomatous stomachs and of the 1404 lymphatic glands which these specimens bore. It is illustrated with diagrams, photomicrographs and charts. The series has been divided into three groups, according to the extent of carcinomatous lymphatic glandular involvement; Group I none, Group II some, Group III all. In the charts the glands are shown as circles, ellipses, or ovals. The carcinomatous glands are shown in solid black. The relative size of the glands is also indicated. The study shows that the size of a lymphatic gland is no criterion of presence or absence of carcinoma. The duration of symptoms bears no apparent relation to size and extent of lymphatic involvement (8.5 years, 8 +, 8 + years in the three groups). Average age at operation and sex bears no relation to glandular involvement. The average loss of weight increases with the increase in extent of glandular involvement (25, 28.4, and 42.5 lbs. in the three groups). The immediate hospital mortality (post-operative) is in direct proportion to the amount of glandular involvement (7.6, 11.6 and 18.7 per cent. in the three groups). The diagnosis of early carcinomatous involvement requires a microscope in the hands of an experienced pathologist.

6. Moschcowitz describes a case of true prevascular femoral hernia operated by him. He clearly presents the formation of this type of hernia. The chief features are the large size of the ring (in his case extending from Gimbernat's ligament to an inch beyond the femoral artery) and ready exposure of the femoral vessels. The sac rests directly upon the vessels. A careful search of the literature shows his case to be the first to be operated upon and studied in vivo.

[T. W. H.]

THE LANCET.

AUGUST 10, 1912.

1. *MURPHY, S. F. *Some Points in the Decline of the Birth-rate and Death-rate.*
2. *ROGERS, L. *The Diagnostic and Prognostic Value of Leucocyte Counts in Cirrhosis of the Liver.*
3. *GAURAIN, H. J. *Surgical Tuberculosis: Its Needs and Treatment.*
4. FRESHWATER, D. *Mercurial Administration. Some Uncommon Methods in the Treatment of Syphilis.*
5. *TODD, T. W. *The Vascular Symptoms in "Cervical" Ribs.*
6. JERVIS, J. J., AND DYKES, A. L. *A Case of Multiple Gummata with an Unusual Deformity of the Liver.*
7. BLAKEWAY, H. *Congenital Absence of the Gall-bladder, Associated with Imperfect Development of the Pancreas, and Imperforate Anus.*
8. JONES, H. R. *Industrial Employment of Married Women. Its Influence on the Birth-rate and the Sex Ratio at Birth.*
9. CAMPBELL, H. *Observations on the Neuron. IV.*

1. Murphy in an interesting but purely statistical paper comments briefly on the various causes leading to decline of both birth and death rate in England and in Europe.

2. Rogers believes that an examination of the blood is of great diagnostic and prognostic importance in cirrhosis of the liver especially in view of the great frequency of this condition in India as compared with Europe and America. A marked polynuclear leucocytosis points toward a terminal bacterial infection and indicates a bad prognosis. In cirrhosis following kala-azar, there was apt to be a leucopenia along with the anemia instead of a leucocytosis. Alcohol was a small factor in the cases he reports while kala-azar or dysentery were common antecedent factors.

3. Gaurain comments briefly on the need of general climatic hygienic and dietetic measures in surgical tuberculosis. In local treatment he emphasizes institutional treatment, and the equipment, staff, etc., needed in such institutions. He speaks of the education, training and employment of patients and the after-care of discharged patients.

5. Todd discusses the changes caused by a cervical rib and their explanation. These changes, he believes, are not due purely to disorders of circulation on account of pressure on the axillary vein but more likely trophic disturbances due to pressure on or irritation of the sympathetic nerves.

[J. B. H.]

BRITISH MEDICAL JOURNAL.

AUGUST 10, 1912.

BRITISH MEDICAL ASSOCIATION SECTION OF DERMATOLOGY.

1. SMITH, W. G. *Introductory Remarks.*
2. *WHITEFIELD, A. et al. *Discussion on Acne and Seborrhœa, Their Causation and Treatment.*
3. *BEURMANN, L. de. *On Sporotrichosis.*
4. *BUNCH, J. L. *The Treatment of Naevi. Based on More Than Two Thousand Cases.*
5. STOPFORD-TAYLOR, G. G. S. *Types of Dermatitis Seborrheica.*
6. MCDONAGH, J. E. R. *A Rational Method of Treating Syphilis.*
7. TOMKINSON, J. G. *The Vacuum Electrode in Neurodermatitis.*
8. MADDEN, F. C. *Papilliform Lesions (Lymphangiomata) of the Scrotum, Associated with Multiple Petechial Spots on the Trunk and Limbs.*
9. *WALSH, D. *Chronic and Recurrent Maladies of the Skin in Relation to Heart Disease.*
10. *MEACHEN, G. N. *Systematic Study of Morbid Conditions of the Nails.*
11. SAVATARD, L. *Sebaceous Carcinoma and its Relation to Rodent Ulcer.*
12. SAVATARD, L. *Fibro-Sarcoma on Lupus Scar Tissue.*
13. ORAM, W. C. *Xanthoma Multiplex.*

2. Whitefield, Sabouraud, Abraham et al discuss the causation and treatment of acne and seborrhea,

laying particular stress on general hygienic measures. There was marked difference of opinion as to the value of bacterial recourse in such cases.

3. Beurmann presents an elaborate paper on sporotrichosis as a new disease hitherto usually confused with syphilis, tuberculosis and coccal infections. It is an infection common to men and animals caused by filamentous spore-bearing fungi of the genus sporotrichum. It is widely distributed. He describes the details of appearance of spores and filaments in cultures and in pus and tissues, its etiology and pathogenesis. The point of inoculation is sometimes the skin, sometimes a mucous membrane or by mouth. Onset is insidious; it is usually an accident which leads to the discovery of the first gummata. They take origin in the subcutaneous tissue scattered over the body. The peculiar type of nodes and method of softening are described in detail. There are various forms the disease may take including ascending sporotrichotic lymphangitis of the limbs, extra-cutaneous sporotrichosis, disease of mucous synovial membranes, muscles, bones, and joints, pulmonary and colon and renal sporotrichosis. Diagnosis is based on numerous small factors, especially the characteristics of the smaller lesions and the constant absence of enlarged glands. Bacterial diagnosis is tedious and difficult. Treatment consists of iodides which give marvelous results. Prognosis is good as soon as diagnosis is made.

4. Bunch describes his treatment of naevi by carbon dioxide snow and summarizes his results in over 2000 cases.

9. Walsh believes that many chronic skin affections are directly connected with certain forms of heart diseases. He finds unsuspected heart trouble common among patients attending a skin hospital and is of the opinion that prognosis in skin diseases largely depends on the state of the heart through the circulation. He urges routine examination of the heart, circulation and other organs in all skin diseases.

10. Meachen in a concise article classifies and briefly considers the various disorders of the nails.

[J. B. H.]

EDINBURGH MEDICAL JOURNAL.

AUGUST, 1912.

1. MACGILLIVRAY, C. W. *Some Memories of Old Harvcians with Notes on Their Orations.*
2. FORDYCE, W. *Complete Absence of the Vagina: Regurgitation of Menstrual Blood Through the Fallopian Tube Into the Peritoneal Cavity; with Notes of an Unusual Case.*
3. *SCHERMAN, L. S. *The Care of the Teeth in Relation to the Health of Children at the School Ages—The Provision of Special School Dental Clinics.*
4. *PIRIE, G. A. *The Diagnosis of Diseases of the Stomach by the X-rays.*

3. Scherman emphasizes the need of care of the teeth in childhood and describes the work now being done in England, Germany and elsewhere in the establishment of school dental clinics and their operations.

4. Pirie describes the development of the use of x-rays in diagnosing various stomach disorders, and gives the details of actual procedures in a given case. He considers various types of stomach and their x-ray appearance, such as the atonic variety, the true hour glass stomach, the spasmodic hour glass stomach, pyloric obstruction, carcinoma of the stomach and duodenal obstruction. He makes the following statement in conclusion. 1. A stomach that allows food to pass at once to its lowest point and gather there is atonic. 2. A stomach not empty in six hours has some obstruction at the pylorus. If the stomach is also atonic gastroenterostomy will do no good. 3. If a functional hour glass stomach is found there is an ulcer somewhere. 4. If a true hour glass stomach is found, gastroenterostomy must be done above level of the constriction. 5. If there is no acid, and the slightest irregularity of stomach outline, carcinoma is present. 6. If indigestion resists medical and dietetic treatment for more than a month, an x-ray examination after a bismuth meal should be made.

[J. B. H.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT. No. 22.

MAY 30, 1912.

1. *ALBU, A. *The Differential Diagnosis and Treatment of Conditions Associated with Abdominal Cramps.*
2. HEILBRONNER, K. *The Early Symptoms of Organic Nervous Disease.*
3. TOMARKIN, E., AND PESCHIE, S. *The Differentiation of the Human and Bovine Types of the Tubercle Bacillus by Means of Subcutaneous Inoculation of Guinea-pigs.*
4. BITTORF, A. *Steatorrhea in Basedow's Disease.*
5. NOEWES, C. *Quantitative Estimation of Albumin in the Urine; the Practical Value of Different Methods.*
6. *JURASZ, A. T. *A Case of Death Following the Intravenous Injection of Hormonal.*
7. *LEDERMANN, R. *The Role of Syphilis in Diseases of the Heart and Blood-vessels.*
8. BERNHEIM. *Observations on Neosalvarsan.*
9. STÜMPKE, G. *A Case of Reinfection with Syphilis after Salvarsan Therapy.*
10. ORLOWSKI. *The Practical Value of the Titration Method of Determining Urinary Acidity.*
11. v. LENHOSSIK, M. *The Etiology and Prophylaxis of Hemorrhoids.*
12. HERZ, P. *Remarks on the Surgery of Meningitis.*
13. MERKENS, W. *Injury to the Urethra by Trauma to the Perineum.*
14. CLAUDIUS, M. *Iodochromic Catgut.*
15. DUTOIT, A. *Tuberculosis of the Optic Nerve and Retina.*

1. The author emphasises the unreliability of localization of pain even by the most intelligent patients, and mentions conditions usually associated with cramps. All cramp-like pains in the epigastrium he believes are associated with pylorospasm, for the relief of which he thinks heat in any form the best symptomatic treatment. Intestinal cramps are best treated, he concludes, by the use of oil enemata, retained over night.

6. The author reports the case of a patient convalescing from cholecystectomy, to whom 20 cc. of hormonal were given. Fatal collapse followed. Autopsy showed no cause for death. The author concludes that hormonal is contraindicated in any condition in which the heart is weakened, as is frequently the case in peritonitis and ileus, and is therefore robbed of its chief use in surgery.

7. Ledermann reports a positive Wasserman reaction in 20 out of 36 cases of aneurysm of the aorta, with probable syphilis in 4 more. The reaction was positive in 17 out of 36 cases of arteriosclerosis, a fact to which the author calls special attention.

[C. H. L., Jr.]

No. 23. JUNE 6, 1912.

1. v. ROMBERG, E. *The Treatment of Chronic Nephritis.*
2. UHLENMUTH, AND KOCH, M. *Experimental Syphilis in Rabbits.*
3. HEYMANS. *Immunization Against Tuberculosis by Dialysis from a Sac of Dead Bacilli.*
4. SZÉCSI, S. *Improved Technique for Romanowsky Blood-stain.*
5. *SINGER, G., AND HOLZKNECHT, G. *The Objective Symptoms of Chronic Spasm of the Colon.*
6. HARTWICH, P. *Cirrhosis of the Liver and Splenic Tumor.*

7. Nukada, Y. *Increased Uric Acid Excretion in the Crisis of Pneumonia.*
8. Loewy, J. *The Influence of Iodotropon on Arteriosclerotic Changes.*
9. Mühsam, R. *Correction of a Defect in the Ureter by Use of the Saphenous Vein.*
10. Müller, E. *Crude Coal Tar in Dermatology.*
11. v. Planta, A. *Mountain Air and Diatheses in Children.*
12. Schwab, M. *Symposium on the Roentgen Therapy of Goitre.*

5. The findings in a number of cases of spastic constipation are described at length. The patients usually showed retracted abdomens, spastic sphincters, and fragmental stools, which were normal, constipated, or diarrheic, with or without blood and mucus. Roentgenoscopy showed alternating contractions and dilatations of the colon, and excessive motility in the upper third of the small intestine. Bismuth suspension was passed along very rapidly. Massage, electricity, and exercise increased the disturbances, while atropin, opium, and sedatives gave relief. They were particularly effective if given by rectum. [C. H. L., Jr.]

Münchener Medizinische Wochenschrift. No. 29.

July 16, 1912.

1. Coenen, H. *New Observations on the Reversability of the Blood-stream.*
2. *Forsell, G. *Relation of Gastric Musculature to the Shape of the Stomach as Seen with the Röntgen Rays.*
3. *Albrecht, H. *The Onset of Antiperistalsis in the Large Bowel in Serious Constipation.*
4. Weil, A. *Estimation of the Gastric Capacity by Washing.*
5. Runge, E. *Treatment of Gynecological Skin Diseases by Röntgen Rays.*
6. Brandes, M. *Permanency of Results in Fistula Treated with Beck's Paste and a Substitute for Bismuth.*
7. Hammerl, H. *Availability of the Heat Generated by Dissolving Lime for Disinfection with Formaldehyde.*
8. Sick, P. *Surgical Prophylaxis of Acute Coryza with Salicyl.*
9. Iversen, J., and Tuschinsky, M. *Neosalvarsan for Tertian Malaria.*
10. Grünberg, J. *Brief Report of Eight Cases Treated with Neosalvarsan.*
11. Enebuske, C. J. *Studies of the Technic of Clinical Measurement of the Blood-pressure.*
12. Port, K. *Etiology of Scoliosis.*
13. Ebstein, E. *A Percussion-hammer and a Tester of Sensibility.*
14. Katz, J. *An Apparatus for Preparing Sterile Distilled Water for Dissolving Salvarsan.*
15. Kleinberger, G. *Unpleasant Effects of the Intramuscular Injection of Hormonal.*
16. Curschmann, H. *A Case of Splenic Anemia in an Adult Treated with Salvarsan.*
17. Wolff, L. K. *Studies of the Wassermann Reaction on the Corpse.*

2. Forsell describes carefully the arrangement of the muscle fibres in the wall of the stomach and points out that its peculiar shape is due to this action.

3. The writer reports a case of ileosigmoidostomy with closure of the colon at the upper end in which the upper part of the colon becomes filled with fecal material after the operation. He thinks this operation should be abandoned. [G. C. S.]

No. 30. July 23, 1912.

1. *Zieler, K. *The Question of Idiosyncrasy to Salvarsan, etc.*
2. *Dreyfus, G. L. *Significance of Modern Methods of Examination for the Recognition of Isolated Pupillary Changes Following Syphilis.*
3. Conrodi, H., and Groch, P. *A Method of Finding Tubercle Bacilli.*
4. Zahn. *Further Experience with the Calcium Chloride Method of Concentrating Tubercle Bacilli.*
5. Scharff, P. *Urethrothermic Treatment.*
6. Kobelt, P. *Treatment of Urethral Stricture by Bougies Causing Hyperemia.*
7. Joseph, H. *Palliative Treatment of Prostatic Hypertrophy.*
8. Holst, F. *Fluoroscopy of the Pulmonary Apices.*
9. Joschke, R. T. *Pituitrin as a Post-operative Tonic with Special Reference to the Function of the Bladder.*
10. Thörner, W. *A Comparative Microscope.*
11. Silberstein, L. *Acctonemia in Children.*
12. Wüstenberg, H. *Reinfection after Salvarsan.*
13. Hirsch, F. *Two Deaths after Salvarsan.*
14. Hammer, E. *A Death after Salvarsan.*
15. Ziegenspeck, R. *Acute Traumatic Retroflexion of the Uterus.*
16. Goebel. *Pituglandol to Produce Labor-pains.*
17. Retzlaff, O. *Perforation of the Rectum with the Rectoscope.*
18. Führer. *Local Gangrene of the Skin after Subcutaneous Injection of Luminol.*

1. The tests of Zieler seem to show that the eruptions after salvarsan are due to an idiosyncrasy to arsenic. There seems to be no analogy between them and anaphylaxis. Injection of salvarsan under the skin is useless to determine the presence of idiosyncrasy. Those who have had an arsenic eruption may react little to the injection and those who react markedly to it may be able to stand large doses of salvarsan intravenously.

2. Dreyfus emphasizes the importance of carefully investigating cases having pupillary changes that might be due to syphilis. He advocates the use of the Wassermann test in the blood and cerebrospinal fluid, the provocative injection of salvarsan, and the pressure, albumen test of Nissl, phase I of Nonne-Apelt, and the cell-count on the cerebrospinal fluid. [G. C. S.]

Wiener Klinische Wochenschrift. No. 32.

August 8, 1912

1. Chvostek. *Edmund von Neusser.*
2. Büdinger, K. *Operative Treatment of Acute Circumscribed Phlebitis.*
3. Deutsch, F. *Functional Renal Test by Means of Phenolsulphophthalein.*
4. Pollak, R. *Erythema Nodosum and Tuberculosis.*
5. Rowan, B. *Pyelonephritis in Nephrolithiasis from Bacterium Paratyphus B.*
6. Fischer, M. *Contribution to Cases of So-called Accessory Milk-glands.*

No. 33. August 15, 1912.

1. Izur, G. *Synthetic Antigen for the Meiostagmin Reaction in Malignant Tumors.*
2. Lichtenstein, R. *Central Bladder Innervation, a Contribution to the Physiology of the Mesencephalon.*
3. Benque, W. *A Case of Persistence of the Umbilical Vein with Other Anomalies Under the Picture of Banti's Disease.*
4. Urstein, M. *Manic-depressive and Periodic Insanity as a Form of Manifestation of Catatonia.*
5. Obst, S. *Brief Review of the Prophylaxis of Malaria in Italy.*
6. Szécsi, S. *The Occurrence of Peptolytic Ferments in the Lumbar Fluid.*
7. Salomon, H. *The Action of Carcinoma Extract in Carcinoma.*

REVUE DE CHIRURGIE.

AUGUST, 1912.

1.* PATEL, M., AND MURARD, J. *Spontaneous Ulceration of the Branches of the External Iliac in Appendicular Abscesses.*
2. COTTE, G., AND BRESSOT, E. *Dyspeptic Troubles of Biliary Origin.*
3. *SARGNON, L., AND ALAMARTINE, H. *The Actual Treatment of the Grave Cicatricial Stenoses of the Esophagus.*
4. CARLIER, V., AND GÉRARD, M. *Surgical Anatomy and Surgery of Horseshoe Kidney.* (Conclusion.)
5. DUCVING, J. *Total Articular Grafts in Man.* (To be continued.)

1. The authors report two unusual cases of death by secondary hemorrhage from an anastomosis between the ilio-lumbar and the deep circumflex iliac five and nine days respectively after drainage of an appendicular abscess. They discuss treatment by proximal and distal ligation, and prophylaxis by early operation and the use of gauze instead of rubber drains, to avoid undue pressure on the iliac vessels.

3. The authors report 24 cases of esophageal stenosis, in six categories of classification, and discuss their treatment by combined endoscopic methods and surgical intervention. [R. M. G.]

IL POLICLINICO.

AUGUST, 1912.

MEDICAL SECTION.

1. PEPERE, A. *The Origin of Multiple Cysts of the Spleen.*
2. CAPELLO, G. *A Contribution to the Study of Hemorrhagic Erosions of the Stomach.*
3. *PEZZI, C. *Graphic Records in a Case of Congenital Heart Disease.*

3. Pezzi reports a case of congenital pulmonary stenosis combined with probable perforation of the interventricular septum, in which he confirmed the diagnosis by graphic records of the heart beat and the pulsations of the jugular vein. The cardiogram presents a gradually ascending systolic plateau, which indicates the difficulty with which the ventricle empties itself. Little undulations in the heart tracings are interpreted as expressions of vibrations of the ventricular walls which would indicate an intraventricular current such as would exist in the presence of a perforated septum. Jugular pulsations give more satisfactory tracings than those of peripheral arteries. [L. D. C.]

Obituary.

JAMES EDWARD NEWCOMB, M.D.

DR. JAMES EDWARD NEWCOMB, who died of arteriosclerosis on Aug. 27 at Lake Kushaqua in the Adirondack mountains, was born at New London, Conn., on Aug. 27, 1857. He graduated from Yale College in 1880, and in 1883 received the degree of M.D. from the College of Physicians and Surgeons, New York. After serving as house-officer at the Roosevelt Hospital, New York, he began the practise of his profession in that city, when he became a specialist in diseases of the ear, nose, and throat. He was consulting laryngologist to the Roosevelt Hospital and professor of laryngology at the Cornell Medical School. He was also for several years a lecturer in laryngology at Columbia College. He was a member and former president of the American Laryngological Society, a member of the American Academy of Medicine, of the New York Academy of Medicine, of the New York County Medical Society, of the West End Medical Society, and of the Hospital Graduates' Club. He was a frequent contributor of special articles to medical journals and edited the American edition of Grünwald's "Atlas of Diseases of the Mouth, Pharynx, and Nose." He is survived by his widow.

Miscellany.

DESIRABILITY OF UNIVERSAL NECROPSIES.

IN a recent issue of the New York *Times*, Dr. Theodore C. Janeway writes as follows of the importance of necropsies in the furtherance of medical knowledge and of the disadvantage accruing from the present difficulty of their obtainment in America.

"Dr. Neumann of Vienna, the distinguished otologist, put his finger unerringly upon the weak points of our American hospitals. To him the two prominent defects were the striking scarcity of autopsies and the equally striking superabundance of physicians of equal rank. This system divides the opportunities for the productive study of disease into portions so small as to render profitable cultivation impossible.

"No one feels these two defects in our New York hospitals more keenly than do our medical teachers working in the hospitals. While the standards of care and nursing are unsurpassed anywhere in the world, the opportunities for the training of competent physicians, and especially of leaders in clinical medicine and in medical teaching, are not such as to fill Americans with patriotic pride.

"It is not possible that a country which has carried the organization of its industries to so high a point of specialization will indefinitely allow the scientific opportunities of its hospitals to be wholly wasted by the failure to organize hospital staffs in such a way as to promote the advance of medical science and its transmission.

"More important, however, to the members of the community as individuals who may at any time fall ill and be in need of medical treatment, is the character of the scientific training which the future physicians are receiving as students. This is not only much less stimulating scientifically than in Germany, because of the lack of scientific organization, but is fatally defective at the root of all training—in diagnosis.

"To learn to recognize disease with accuracy, one must have the proof of the correctness or incorrectness of his diagnosis in every individual case. In surgery, this proof is for the most part obtained at the operation, and surgical diagnosis has advanced by leaps and bounds.

"Medical diagnosis in this country, except for

the few men of exceptional opportunities, is largely a matter of clever guessing and seldom knowing whether or not one is right. Of course, typhoid fever, diphtheria, tuberculosis, malaria, and such other diseases may be recognized infallibly by the identification of the germs which cause them, but even in these diseases the changes in the internal organs and possible complications are very numerous and are frequently wholly overlooked during life.

"The one firm foundation for the successful diagnosis of disease is the proof afforded by post-mortem of every mistake made. Unless students learn by the mistakes of their professors, and later as hospital physicians by their own mistakes, they will never become good diagnosticians, and unless they are good diagnosticians their patients will be inadequately cared for.

"The percentage of post-mortems among patients dying even in our municipal hospitals is absurdly small as compared with that in other civilized countries. Few hospitals in New York have autopsies on more than a quarter of the dead, and many have less than 10 per cent. In foreign hospitals, well over 75 per cent. is the rule, in Vienna practically 100 per cent. Even in so nearby a city as Montreal, in the splendid Royal Victoria hospital and in the old Montreal General hospital, the hospital reserves the right to perform an autopsy upon every patient dying within its walls."

The importance of universal necropsies is recognized by every physician, but their requirement is hardly at present to be expected in a country which still attaches so much regard to the sentimental liberty of the individual.

DOCTORS AS DETECTIVES.

It is generally averred and accepted that the late Dr. Bell of Edinburgh was the original of Sherlock Holmes in the celebrated detective stories by Dr. Sir Arthur Conan Doyle. A French physician, Dr. De Neuville, has recently written, in the Paris *Revue*, some similar stories in which a doctor figures as a detective in several important criminal cases.

"One of these stories deals with the discovery at Havre, in 1909, of the corpse of a woman who kept an inn. The police authorities arrived with the doctor attached to the police service. The medical specialist, after examining the various traces of the crime said:

"What is the last boat that has arrived?"

"The *Donna Maria*, from Sicily."

Then without a moment's hesitation the doctor began:

"This woman has been assassinated by a left-handed individual, wearing a slight moustache and probably a Sicilian. He knew the woman and has undoubtedly stayed here before. He knew that she was often drunk and entered the house by breaking in. He killed her for fear she would wake while he was robbing the place and then escaped, thinking he had left no traces. He probably has in his pocket the stump of a candle which has been used."

While a detective was sent in search of any one answering to this clue, the doctor explained how he had reached his conclusions.

"The assassin wounded himself at the door in entering and a splinter of wood, stained with blood, made me suppose that he is left handed. By the side of the blood on the floor there are traces of a candle which has dripped. That confirmed my idea that the man who held the light in his right hand had the instrument of crime in his left.

"The microscope showed me that the candle was one of those manufactured in Sicily. I recollected that detail by remembering the Bertillon collection of candles, which contains specimens from every part of the world. In thinking who could have used a Sicilian candle I concluded that he must have just arrived from Sicily. The microscope also showed two small reddish hairs in the candle grease, mustache hairs, undoubtedly, as those of the beard are quite different. The murderer after the crime had probably twisted or bitten his mustache without being aware of what he was doing."

The doctor's reasoning was confirmed by the immediate arrest of one Foforazzo, a passenger on the *Donna Maria*. The doctor handed him a piece of paper which he took in his left hand, which was wounded. The candle end was found in his pocket and he confessed to the crime.

MAURICE HOWE RICHARDSON.

The following resolutions on the death of Dr. Maurice Howe Richardson were adopted at a meeting of the Medical Board of the Massachusetts General Hospital held August 12, 1912.

In the death of Dr. Maurice Howe Richardson the Massachusetts General Hospital loses a loyal friend and a devoted member of its staff, who during a long period of service has worthily carried forward its traditions and enhanced its fame.

Graduated as House Pupil in 1877, he was appointed Surgeon to Out-patients in 1882, Visiting Surgeon in 1886, Surgeon-in-chief in 1911; and while still active in this latter office, he died suddenly, as he would have wished, on July 31, 1912.

His activities in these various positions of responsibilitiy were characterized by the utmost loyalty to the Institution he served, by indefatigable zeal in the prosecution of his work in spite of increasing external demands, and by an abiding faith in the development and possibilities of the art of surgery. With advancing years and broadening experience, his enthusiasm for his chosen field of operative surgery increased, and the effect of his compelling personality on his colleagues, on his students, on his patients, and on the community at large, became constantly more far-reaching and influ-

ential. He died at the height of his career, working to the very end.

As a teacher, he invariably inspired interest and compelled attention to the practical side of medicine; as a surgeon, he was bold, keen in judgment, and an operator of exceptional skill and facility; as a colleague, he was unselfish and just, always helpful to those who had not yet attained distinction; as a man, he was simple in his tastes, hospitable, and generous in his attitude toward the shortcomings of others.

For these reasons, he leaves a memory of charming personality and great achievement in the minds of the wide circle of his friends and colleagues, both within and without this hospital, which time can by no means efface. It is therefore fitting that the Medical and Surgical Staff place on record this heartfelt expression of the loss which his death has occasioned, and that it extend to his bereaved family its deepest sympathy in the affliction which has so suddenly removed him from our midst.

HUGH CABOT,
Secretary Medical Board.

THEODORE J. EASTMAN,
Secretary Junior Medical Board.

CORRESPONDENCE.

OFFICERS OF TENTH INTERNATIONAL OTOLOGICAL CONGRESS.

BOSTON, August 26, 1912.

Mr. Editor: In the courteous notice of the meeting of the Tenth International Otological Congress, appearing in the editorial column of your issue of August 22d last, there is an error which I wish to correct.

On page 263 it is stated that "It was voted to accept the invitation of the German Otological Society to hold the next Congress, 1915, at Halle, Germany.

"For this Congress the following officers were elected, President, Dr. Alfred Denker, Director of the Otologic Clinic at the University of Halle;" thus far the statement is correct, but there follows in your notice the names of officers of the present Congress who will have no connection with the Congress over which Dr. Denker is to preside.

The construction of the International Otological Congresses is vested in an International Committee of Organization comprising over one hundred and fifty members, distributed among the following countries: Austria, Belgium, Denmark, France, Germany, Great Britain and Ireland, Holland, Hungary, Italy, Norway and Sweden, Russia, Spain, Switzerland, and America, and is peculiar in this respect that on the first day of the regular sessions of a given congress, this committee, in special meeting, selects from the invitations received for the holding of the next Congress, three or four years later, the place of meeting and the person who shall be the President of the Committee of Organization of the forthcoming Congress.

The International Committee goes no further than this but leaves the whole matter of provision for the next Congress, including the appointment of all officers and committees, in the hands of the newly appointed President of the Organization Committee.

This has been the method of procedure since the initial Congress in 1876, but there has been presented at this Congress, a proposition from Germany to make certain changes in the method of organization, which proposition, translated into the official languages of this Congress, is now being distributed to the members of the International Committee, with a view to its deliberative discussion, by correspondence and otherwise, and, therefore, its better determination at the time of the meeting in Halle.

Very truly yours,

CLARENCE JOHN BLAKE, M.D.,
President Ninth International Otological Congress.

RESIGNATION.

DR. BERNARD H. SMITH has resigned after seven years' service as chief of the United States Food and Drug Inspection Laboratory in Boston.

RECENT DEATHS.

DR. WILLIAM J. PARKER, who died of typhoid fever on Aug. 25 at Jersey City, N. J., was born in 1858. He received his doctorate in medicine from the Bellevue Hospital Medical College, and immediately began the practice of his profession in Jersey City. From 1903, until his retirement he served as state surgeon-general. He is survived by two sons.

DR. ERNEST HAROLD SPARROW, who died on Aug. 27, at Cambridge, Mass., was born in that city on Sept. 12, 1879. He received the degree of A.B from Harvard University in 1902, and that of M.D. in 1906. After serving as house-surgeon at the Cambridge hospital he began the practice of medicine in his native city, and in 1907 was appointed inspector of milk and vinegar under the local board of health. He was a member of the American Medical Association and of the Cambridge Medical Improvement Society, and a Fellow of the Massachusetts Medical Society. He is survived by his widow.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, AUGUST 24, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	19	6
Chicago	616	238	Waltham	7	2
Philadelphia	—	—	Brookline	1	—
St. Louis	—	—	Chicopee	20	16
Baltimore	—	—	Gloucester	6	2
Cleveland	—	—	Medford	8	4
Buffalo	—	—	North Adams	6	2
Pittsburgh	—	—	Northampton	7	2
Cincinnati	—	—	Beverly	2	1
Milwaukee	—	—	Revere	2	1
Washington	—	—	Leominster	8	3
Providence	—	—	Attleboro	2	1
Boston	214	79	Westfield	9	2
Worcester	38	21	Peabody	—	—
Fall River	33	14	Melrose	—	1
Lowell	32	18	Woburn	5	1
Cambridge	17	3	Newburyport	7	2
New Bedford	38	20	Gardner	—	—
Lynn	20	7	Marlboro	3	0
Springfield	24	10	Clinton	5	2
Lawrence	32	16	Milford	—	—
Somerville	9	1	Adams	2	1
Holyoke	3	—	Framingham	—	—
Brockton	8	—	Weymouth	—	—
Malden	14	3	Watertown	7	1
Haverhill	12	2	Southbridge	4	3
Salem	8	1	Plymouth	4	2
Newton	6	—	Webster	2	0
Pitchburg	12	6	Methuen	—	—
Taunton	18	8	Wakefield	—	—
Everett	9	2	Arlington	—	—
Quincy	—	—	Greenfield	—	—
Chelsea	17	5	Winthrop	2	—

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SEP 14 1912
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Original Articles.

THE OPERATIVE TREATMENT OF GASTROENTEROPTOSIS.

BY JOSEPH RANSOHOFF, M.D., F.R.C.S. (ENG.). CINCINNATI.

In being invited to present a surgeon's solution of a very complex problem before so distinguished a body as the Massachusetts Medical Society, I am conscious of having been signally honored. For this I am sincerely grateful. Whether your program committee exercised wisdom proportionate to its generosity in choosing me to present the surgical aspect of visceroptosis remains to be seen. For in the beginning it is proper to remark that the views to be expressed, while held by a growing number, are at variance with those expressed by the majority of surgeons. They are personal convictions, however, which have come to me and have been made firm as experience has grown riper.

From the report of the combined meeting of the American Obstetrical and the American Surgical Associations in the transactions for 1910 of the latter, and again from that of last year, it will appear that the patient with visceralptosis has been definitely given a passport to the domain of the internist, from which the orthopedist may get him by requisition. Where many men of large experience and great authority in matters surgical hold out against operative interference, it requires conviction born of a series of successes to advocate the use of the knife, when other measures have failed, and this conviction I have. It is to be regretted that ptosis of the abdominal viscera was always considered by Glenard as only a part phenomenon of a very complex condition. Doubtless in many cases this is true, and if the condition is not congenital it develops early in life, is often hereditary and is unmistakable. A young woman, more rarely a male, without any pathologic cause of tissue relaxation, has stooped shoulders, a dry skin, prematurely wrinkled, breasts pendulous, and an abdomen flabby like that of a woman who has given birth to many children. The hernial apertures are relaxed, the uterus retroverted and the stomach often dilated. There is a general tissue insufficiency as often manifested, for example, by a condition which does not seem correlated, namely, a flat foot. The circulation is poor; the muscles even in action are feebly outlined. The patient, while young, is habitually tired, psychically depressed, usually pessimistic, in short a confirmed neurasthenic. Here is a condition which might well be termed panoptosis and in which the surgery, which I have the honor to represent on this occasion, can offer but little.

Since this condition is easily recognized during the growing period of the child the postural combined with the mechanical treatment, if instituted early enough, must certainly be of great benefit. There is, however, another large class of cases in which the sagging of the abdominal or pelvic organs is associated with remote effects which hardly seem correlated. They are attributed for the main part to the results of intestinal stasis. It is from this center that much of our knowledge of the relation of this condition to rheumatoid affections has emanated. These are, however, minimal in importance to the neurasthenic states, which we are coming to believe are largely a result of chronic autointoxication of intestinal origin.

Despite the fact that the latest German authorities have discovered an increase in number of intestinal bacteria proportionate to the frequency of the stools, it seems clinically certain that absorption from the large intestine during stasis is deleterious to the nervous system and if long continued engenders a flood of phenomena vaguely called nervous.

To dwell upon the latter is beyond the purview of this paper. But it is because of their preponderance that the sufferers therefrom are often passed from one specialist to another without obtaining a careful analysis of their cases. It is manifestly impossible to dwell at this time on all the abdominal ptoses without abusing the privilege you have given me. I shall, therefore, limit myself to the consideration of those of the gastro-intestinal tract. But one feature is common to them all, namely, that the nervous habit is as easily acquired and becomes as easily fixed in the visceroptotic as is the universally recognized epileptic habit, in which even after the successful removal of the cause as, for example, from depressed fracture, the symptoms soon recur. It must be made plain that if anything is to be accomplished for the relief of the nervous manifestations of visceroptosis, the measures indicated in the individual case should not be delayed. Fortunately our methods of diagnosis have been so quickly advanced that when the indications are clear a radical treatment need not be long put off.

It is to be regretted that in ptosis of the abdominal viscera the clinical manifestations bear no fixed relation to the form or the degree of sagging. A complete prolapse of the uterus often causes less disturbance than a relatively slight retroversion that is fixed. A movable kidney that can be displaced from the loin to the pelvis may produce no symptoms at all, while one that moves but little beyond the normal limits may by reason, for example, of an anomalous vessel, give rise to painful and often serious obstruction, which nothing but operation will relieve. By way of digression I may here call attention to the conservation which surgeons generally are displaying in regard to fixing movable kidneys. We are all fixing fewer kidneys than formerly, because the operation, as a rule, failed to relieve the nerve symptoms which were erroneously attributed to nephroptosis. Particularly are the displacements of the stom-

* Read at the meeting of The Massachusetts Medical Society, June 11, 1912.

ach and of the various segments of the colon of widely varying importance in the causation of either local symptoms or those that may be termed neurasthenic. Fecal stasis in one individual may not be at all deleterious, whereas in another it produces a toxemia of which we are just beginning to appreciate the protean manifestations. A stomach occupying the upper pelvis may perfectly perform its function, while another much less prolapsed may be delinquent through lack of tone of pyloric angulation.

In seeking the mechanical, including the operative therapy, for visceral sagging it is a priori, necessary to consider where the fault lies in the forces concerned in keeping the viscera in their normal positions, and in stimulating them to function. Of these the equable atmospheric pressure is the only one that never varies. The musculature of the abdominal wall including, of course, the diaphragm and its attachment to the cervical fascia, plays a very important role. The movements of the colon, rather inactive during the sleeping hours, are stimulated to activity by the first muscular exercise incident to rising and dressing. Of course an ample breakfast helps along. Every clinician must cope with the tendency to constipation attending confinement in bed. My excuse for recalling these elementary observations is the fact that in the fixation operations for the acquired types of ptosis which, of course, are in the minority, the relaxed abdominal wall is generally ignored and remains a potential factor in the etiology of recurrence. But the visceroptosis which results from the failure of its muscular support differs essentially from that which is congenital in origin and in that the neurasthenia so common in the latter is far less frequent. It is only necessary to recall the equanimity with which wide diastasis of the recti or ventral hernias amounting almost to eviscoration are borne with only local effects. The overshadowing factor in the etiology of this condition is some congenital variation in the embryonic process of parietal fixation of the different parts of the intestinal tube. The more we analyze our cases of visceral ptosis the more we find a history dating back often to childhood with symptoms increasing as age advances.

The variations in the fully developed adult visceroptosis are almost innumerable, but they appear to me secondary to two primary or general conditions which as yet have not gained the recognition they merit.

The first and more important of them I believe is the insufficient fixation of the cecum and of the lower part of the ascending colon. The second is the relatively high fixation of the splenic flexure of the colon with consequent sharp angulation at this point. That a mobile cecum should be a factor in any morbid condition cannot be readily conceded because it is so often found without producing symptoms. Indeed, every fifth child is born with a mesentery for the entire colonic length. The recumbent posture of infantile life doubtless prepares the child for the erect posture of later life. It helps to fix the colon and makes of it a retroperitoneal structure by the time permanent functions of absorption and inspissation of waste products are to be established. In every tenth subject, of 640 cadavers carefully examined, Wandel found the cecum and lower ascending colon completely enclosed and mobile to a degree permitting tortion, kinking or displacement. Twenty-eight of them he found in children, thus bearing out the hypothesis I have just advanced.

It is in the cecum that the fecal current is first arrested after being rushed in a little more than two hours through the many feet of small intestine, and it is here that stasis normally occurs. Without the support given by fixation, cocatony, as Fisher calls it, is likely to ensue and with it all the secondary local and general manifestations incident thereto. In the cecum and the colon adjoining bacterial activity reaches its climax. In the event of inadequate or delayed drainage the symptoms of autointoxication become pronounced and finally, as Pilcher has recently put it, neurasthenia in some of its many forms crowns the process.

It is a far cry from mobile cecum to neurasthenia, but it is making itself heard. A prolapse of the head of the colon may give no evidence whatever of its presence and be discovered at operation and then often have its causative significations completely overlooked.

Every surgeon has occasionally removed a long freely movable and nearly or quite normal appendix on the diagnosis of chronic appendicitis. They are cases without the history of acute and febrile attacks, but in which the symptoms are evanescent, colicky attacks, ill-defined gas pains and above all constipation with the endless train of nerve symptoms which it so often begets. If the pains recur after operation we lightly ascribe them to adhesions or neurasthenia. We remember these operations as easy ones because the cecum although perhaps at first not readily found because the ascending or transverse colon would get in the way, could when found, be easily drawn into the wound together with a good part of the ascending colon. I have found this condition not only in multipara but quite often in young children and in adolescents of both sexes.

In its symptomology the condition greatly resembles the pseudo-appendicitis of Nothnagel. What actually occurs is a ptosis of the mobile cecum of a mobile ascending colon or of both. In the very young a pericolotis with the film-like vascular covering does not occur. But I have seen it now in seven cases of what appeared to be primarily a mobile cecum. The following is the most interesting of the neurasthenic cases of this kind that has come under my observation.

Mrs. T., aged 40, the mother of three children, has for the last eight years suffered from ob-

secure pains in the lower right abdominal quadrant. Has always been the subject of chronic constipation. Headaches were of frequent occurrence and at times, when the constipation was especially prolonged, she had attacks of vomiting. The severe pains were paroxysmal in character and were believed to be due to a loose kidney. The course of the disease was affebrile. Relief had been sought by the patient at many hands but without success. She had become neurasthenic. The statement was made that during her paroxysmal attacks a painful swelling appeared in the right lower quadrant, which was believed to be the distended prolapsed kidney. Urinalysis negative. Ureteral catheterization with a leaded catheter and radiography revealed a phlebolith one-half inch removed from the ureter. On the right side there could be moved under the examining fingers the distended head of the colon, from which, under pressure, the contents escaped. The operation revealed a normal appendix, the cecum and lower portion of the ascending colon enormously distended and in the lower part distinctly movable. Velamantous injected adhesions covered the surface of the cecum, and one band, distinctively obstructive in its effect, stretched like a wire over its front. With the division of this band and all the lesser ones in reach an ocular and aural demonstration of its obstructive effects was given by the emptying of the colon with a gurgling sound. The operation was completed by the removal of the phlebolith from the pelvis. Constipation, pain and neurasthenia have gone together.

Except for the phlebolith found in this case it fairly typifies a condition which should be regarded as a distinct morbid entity. Experiences are rapidly multiplying to show that, although the appendix still occupies by far the most important place in acute affections of the iliocecal region, there are many cases in which it is subordinate in importance. This, notwithstanding the dictum of Kelly that primary typhilitis is among the rarest of diseases, and the remark of Deaver that stercoral typhlitis may occur, I do not deny; that it does occur I do not believe. If with a normal or nearly normal appendix conditions such as have been described are found we must look for another cause. I believe it to exist in congenital malformations of this region which, with the tendency to fecal stasis, torsion and infections, short of the suppurative, give rise to very varied anatomic changes. Just as nonperforative affections of the gall-bladder, of the stomach or of the uterine appendages can produce changes in the adjacent peritoneum, so a distended cecum or colon may give rise to adhesions which may assume the form of the thin vascular film-like membrane so well described by Jackson, or to firm white fibrous bands which more or less constrict the bowel lumen. That this is the result of a low grade of infection is made probable by the observations of Hoffmeister, who in ten cases found the tricocephalus dispar outside the gut wall. That deformities notably of the appendix and occasional kinking of the ilium should often result is self evident. It follows, of course, that the removal of the appendix alone cannot be curative. For this reason it has long been a question in my mind whether the very short incision now so universally made in the interval appendix operations is the best to use in all or even in most cases. Surely in the cases under consideration more room is desirable both for exploration and for instituting the necessary remedial procedures. A long pararectal incision can be made in the beginning since fortunately a distinct clinical syndrome results from the conditions described, and both by touch and by radiography a diagnosis can be made. I believe that the pericolic adhesions are only the result of an unsuccessful effort of nature to overcome a congenital deflect, which surgery alone can successfully correct; and procrastination is here as elsewhere out of place. In cecopexy combined with cecoplication when typhlectasia already exists we have a safe method of overcoming primary cecal stasis, and which if done early enough will do away with the various exclusion operations, which threaten to become the fashion.

This brings us naturally to the typical prolapse of the midcolon with its angulations, its long history of indistinct, ill-defined abdominal symptoms, the necessity for daily cathartics and all the far-reaching consequences of constipation. There are few as yet who follow where Lane has led, but we are indebted to him for a clear, explicit and bold pronouncement of the causes and dire local and general results of fecal stasis. No one else, with the exception of Metschnikoff, has so clearly portrayed the deleterious results of colonic auto-intoxication. More than any other he has clarified our understanding of the progressive nature of a condition in which according to its severity, the operative procedures to be undertaken must be proportionate.

A festooned colon reaching to the pelvis is abnormal. At a right angle it should pass horizontally from right to left and from about the midline gracefully ascend to the splenic flexure where, under a more or less acute angle with consequent almost natural valve formation, it passes into the descending colon. The splenic flexure is the most fixed and the highest point of the colon. Its attachments to the diaphragm are firm and the angle naturally divides the large intestine into two parts, the proximal of which is always more or less filled with feces, whereas the anal portion is practically empty and serves only as a passageway before the final expulsion. The attachments of the hepatic flexure are very much less firm. Overfeeding and inattention to regulating intestinal evacuations are liable to make the first changes in the transverse colon when it is overloaded. The fibrous band, which we so often see at the hepatic flex-

ure looks like a misdirected effort to sustain the lowered arch at this, its proximal end. If the hepatic flexure does not sink, the angulation here in turn produces complex changes in the cecum and in the ascending colon. How large a part antiperistalsis, a physiological factor which we must recognize, plays in the development of the conditions described as a result of ignoring the calls of nature cannot be determined. But retrogression of the fecal current has been often demonstrated by radiography. On account of the lower level of the hepatic flexure and its loose attachment the descending limb of the prolapsed colon readily lies in contact with the distended ascending colon, and when the film-like adhesions occur the well-known double barreled shotgun arrangement of these two segments of the colon is formed. Fortunately the sagging transverse colon is as a rule mobile. When it is fixed it is usually from or associated with some lower abdominal lesion which the x-ray may not have revealed. Surprises sometimes come in this manner.

Several months ago I operated upon a virgin with marked coloptosis. The symptoms of neurasthenia were pronounced. There was nothing to indicate ovarian disease. The operation revealed a sagging transverse colon fixed through the omentum to a tuberculous mass involving the left tube, which was removed. The patient recovered more promptly from the operation than did the surgeon from the chagrin of having relied almost wholly on the x-ray for diagnosis. Nevertheless radiography is entitled to the first place in the diagnosis of the manifold variation of visceroptosis and without it any operation for its relief is made in the dark.

Recently I saw a man of 40 extremely neurotic, constipated for many years, with suffering of indistinct character in the lower left quadrant. His nutrition was excellent. There was no tenderness nor could a tumor mass be felt. Repeated examinations were negative as to occult blood. A half dozen x-ray plates which were taken all showed a V-shaped pendulous transverse colon. Whether the bismuth was introduced from above or below there was one section of the lowest part of the descending colon about two inches long in which the bismuth was never found. It corresponded to the place of which the patient complained. The operation revealed a tight band extending from the outer surface of the gut and nearly shutting off the descending colon from the sigmoid. Its cause could not be elicited. The band was easily lifted on a spatula, divided and excised, whereby the lower segment of the colon was freed. A peritoneal plastic completed the operation. The constipation and the pain have been relieved and with them have gone the general concomitant symptoms.

It is evident that every case of fecal stasis must be studied individually and that the adoption of any routine procedure, except the radial ileo-sigmoidostomy of Lane, must be unsound. Notwithstanding the brilliant results of its originator, this is an operation to be reserved for extreme cases. The exclusion of the large bowel may have demonstrated that it is an unessential part and that a time may come when total colectomy will be advocated by way of prophylaxis against arteriosclerosis. At any rate Diastaso followed thirty-six of Lane's cases for three or more years, examining the evacuations bacteriologically. The patients remained in good health and gained in weight and activity. But in other cases retroperistalsis forced this operator to excise the colon in whole or in part. Some operators overcome this by draining the colon through a cecostomy, which in my judgment is rather too nasty a wound complication for a condition that in and of itself is rarely dangerous.

Fortunately such radical measures are uncalled for in the common type of ptosis of the transverse colon, the primary case of which is the high attachment of and consequent sharp angulation at the splenic flexure. As Payr has shown it is sometimes possible to bring the splenic flexure to a lower level by dividing the fibrous bands which hold it. When this promises to be difficult the routine operation should be colopexy, by which the arch of the colon can be brought and fixed in relation with the anterior abdominal wall in a plane two inches or more above that of the umbilicus. This operation of Coffey is my routine procedure (in the cases under consideration) to which I add, as the case may demand, reefing of the mesocolon or, where the gut is particularly redundant, a coloplication. To make the operation effective the suspension must be made, as far as possible, on both sides of the median incision. The lesson learned, that peritoneal adhesions are readily stretched and may even disappear when peritoneum is sutured to peritoneum as in ventral fixation of the uterus, has a practical bearing on the fixation of the colon. For this reason I divide the peritoneum of the anterior abdominal wall along the line of proposed fixation and expose the fascia from within. Into these denuded spaces the omentum is fixed by a continuous suture. This procedure is analogous to that proposed by Nogarth for cirrhosis of the liver. In properly selected cases this operation is safer than an anastomosis operation and serves every purpose, but is not entirely devoid of danger. In one of my cases of cirrhosis death followed the operation on the fifth day from thrombosis of the gastric veins. The signal advantage of colopexy thus performed is that it restores the natural, though always weak shelf-like arrangement of the transverse mesocolon above which the stomach, which is so often prolapsed, is restored to its place. By none of the anastomosis operations is this accomplished. Regarding the latter there have been many variations by which the cecum has been joined to the descending loop of the transverse colon. Hoffmeister, for example, performed this ceco-

transversotomy in twenty-three cases with uniform success. Where the primary angulation is at the splenic flexure if an anastomosis operation is to be done it is preferably made between the sigmoid flexure and the ascending limb of the prolapsed colon.

The more one sees of ptosis of the colon the more evident it becomes that no one operation is applicable to all cases. A careful study of the radiograph and then of the actual conditions as seen through a large incision will determine the operator on the proper method of procedure. Fixation operations of the cecum, of the transverse colon or of the sigmoid, according to the indications, have in my experience sufficed and if performed sufficiently early will, I think, make unnecessary the decidedly more dangerous exclusion operations.

GASTROPTOSIS.

The intensive cultivation now practiced in the field of coloptosis has caused us of late to overlook the prolapsed stomach. Whereas it is true that in most instances the prolapse of the colon entails a sagging of the stomach, the cases are far from rare in which the prolapse of the stomach is either primary or the only malposition present. Nor must it be forgotten that where the combination exists very many of the symptoms are gastric in character and these cannot, in my judgment, be relieved by any operation except the fixation of the colon and incidentally of the stomach. No exclusion operation can effect this. The stomach, of course, has supports that are independent of the colon, although in a normal condition it may be said to rest on the left half of the colonic arch on a shelf formed by the transverse mesocolon supported by the loop of small intestine. Furthermore, the attachment of the pylorous to the diaphragm and of the duodenum to the liver and of the fundus to the spleen and splenic flexure assure the stomach an independent support. I would insist upon the fact that good results were obtained by stomach fixation before operations on the colon became generalized. A few days ago a young woman of 31 reported to me upon whom, five years before, I had performed a gastropexy with gastroplication. Before that she had run the gauntlet of specialists without avail. Postprandial distress, eructations of gas, occasional vomiting, persistent constipation and so on had been complained of for fully eight years. Her weight was very much reduced and her suffering had played havoc with what I was told was naturally a sweet disposition. Marriage and the birth of a child did not mend matters nor make them worse. When she entered the hospital she weighed 96 pounds. An x-ray revealed the fundus of the stomach resting on the iliac pan and extending across the pubic arch to the right side. The upper border of the bismuth shadow was a level line. It looked like the flabby cheese bag of long ago. The picture taken two hours later showed the contents scarcely changed and fully two-thirds of the ingested milk of bismuth were still in the stomach twelve hours later. The gastric-atony was most marked. The stomach held two quarts of fluid comfortably and without revolting. A gastropexy or rather an omentopexy with gastroplication was performed. X-ray pictures taken a week later showed astonishing results. The stomach was in the best vertical position with the pylorous low. Within five minutes of the ingestion of the milk bismuth the motile function was in action. The wall of the stomach fitted to its contents like the skin to the sausage. This woman has continued well, does all her own housework and is unconscious of having either a stomach or nerves. Incidentally her normal weight is between 115 and 120 pounds.

There is hardly a branch in medicine in which radiography is as helpful as in the one under consideration. The old classical anatomical illustrations, so familiar to us all, of the transverse or oblique stomach do not correctly represent the viscus in vivo and at work, nor do the internists fairly show its everyday working capacity when they analyze what it can do with a test meal, a piece of toast, a small piece of steak and a glass of water. A stomach may be able to dispose of this and secrete the conventional two per cent. of hydrochloric acid, and still be totally inadequate to the ordinary demands made on it in the every day mode of eating and drinking. The merit is the radiologist's, who has shown us the wide variations in the position of the stomach in the normal individual and the speed with which it all but shoots its contents through the relaxing pylorous.

Deficiency of gastric secretion, while doubtless important, is less so than motor insufficiency since the ingested food stuffs are subjected to other chemical influences in the small intestine, whereas motor insufficiency cannot be compensated for and must if long continued lead to gastrectasia, the symptoms of which need not be here enumerated. I cannot refrain, however, from alluding to the frequency with which the symptoms of gastric ulcer come in young women in whom a gastroptosis is either overlooked and perhaps not recognized as the initial cause.

There is a tendency among clinicians to divide gastroptoses according to the degree of sagging, the extreme cases being those in which the fundus and even the pylorous may be in the pelvis. Any attempt at classification as a basis for operation is, in my judgment, ill advised, because very many stomachs are markedly prolapsed without disturbing digestion. More important far than the position of the stomach is its tone, as shown by the x-ray and particularly the presence of what is akin to an antral sphincter showing as a constriction some inches from the pylorus. In considering gastroptosis from x-ray findings we are justified in dividing them into two classes. The first in which the stomach retains its vertical position and the pylorus, although prolapsed, still occupies a low point. In

the second class the stomach occupies a transverse or oblique position in which the greater curvature and fundus are greatly depressed, the pylorus remaining on a higher level. It is in this class of cases, even if the prolapse is of moderate degree, that the functional disturbances are very much more pronounced, because of the angulation which occurs at the gastroduodenal junction and because the chyme mass must be lifted uphill.

The relation of gastroptosis to mobile cecum and prolapse of the colon has been made particularly clear by Klose. Quite recently MacLaren called attention to a number of neurasthenic cases in which the appendix had been removed without more than temporary benefit. In a number of them a sagging stomach was found, and great relief was afforded by placing the patient in the recumbent posture after every meal. Internists and orthopedists have also recommended this postural treatment. Gastropexy aims to do this in a definite and permanent manner.

The all important question of the relationship of so-called nervous conditions and of gastric disorders to each other can only here be touched upon. Suffice it to say that the influence of the nervous system on the digestive functions beginning with the salivary secretion and ending at the anal sphincters has been recognized from time immemorial. To make this influence responsible for the chronic inactivities of the stomach and colon is not warranted by this physiologic relationship. On the other hand, the baneful effects of visceral sagging on the nervous system have been removed sufficiently often and permanently by operation to warrant, in my judgment, the assertion that the ptosis is the cause in very many cases of the neurasthenia.

There is a German adage which is applicable to the treatment of visceral ptosis. It is, "where there is no plaintiff there can be no judge." In other words, extreme intestinal sagging accidentally discovered should be let alone, like similar nephroptosis. When, however, it gives rise to functional disturbances, which may appear slight when compared with the manifestations on the part of the nervous system and which make for invalidism after reasonable efforts at conservatism have failed, it is my judgment from experience of some thirty operative cases that operation should be resorted to with at least a fair prospect of permanent relief.

An operation for visceroptosis should not be a haphazard one. Since the stomach and colon often sag together, the one should not be lifted without the other. It is not my purpose to go into technical details, but I may be permitted to say that the median incision should be rather long than otherwise. Particularly when the abdominal wall is greatly relaxed such an incision permits a plastic operation whereby the replaced viscera are held in the upper abdomen, where they normally belong. This repair of the abdominal wall is as important as that of breeches of the pelvic floor. It makes a living abdominal support to take the place of the ingenious mechanical device of the orthopedist. This matter is so important that Rovsing makes a distinction between ptotic women who have borne children and those who have a virginal, strong abdominal wall.

In visceroptosis operations should not be multiplied. It has been the history of many of these cases that one operation after another has had to be performed. Coffey has very well insisted on the necessity of doing all the suspension work necessary at one sitting. The following case is one of the number which I should cite by way of illustration:

P. W., aged 40, was admitted to the Jewish Hospital on the 20th of March, 1910. For many years he had been suffering from abdominal distress, notably after eating. There never was any sharp pain. Only at times were they cutting in character. The nature of the food did not influence them. There was always a sense of bloating with gas eructation. The latter disturbed him very much and at times became uncontrollable. At infrequent intervals he vomits and headaches are of frequent occurrence. Constipation is habitual, no movement occurring without the use of cathartics or enemata. He is frequently unable to follow his business pursuits, has difficulty in breathing at times and suffers from sleeplessness.

Present condition: Anemic, fragile-looking adult; weight 103 pounds. Is prematurely gray. There is a slight subicteric tinge of the skin. Heart and lungs normal. Urinalysis negative; stool examined for blood, examination negative. On pressure, there is some tenderness in the epigastric region. The liver appears somewhat mobile and the dilated gall bladder can be readily mapped out. The stomach analyses, which had frequently been made by a number of specialists, showed an atonic stomach without any evidences of ulceration. The x-rays taken by Dr. Lange showed a gastroptosis with the fundus reaching to near the iliac crest and the pylorus on a higher level opposite about the fourth lumbar vertebra. The axis of the stomach was nearly transverse. The transverse colon was in the pelvis and angulated. The operation in the median line permitted the fixation of the stomach and colon by omentopexy, gastroplication and the drainage of the distended gall bladder. Although it would have been easy to duplicate and shorten the suspensory ligament of the liver, as has been done by a number of German operators, I believed this step unnecessary. This patient made an uneventful recovery.

He weighs 130 pounds, eats whatever pleases him and the stock of cathartics which he had on hand has not been diminished since the operation was performed.

There is no better judge of the nervous and mental state of a man than his wife. In answer

to my inquiry as to his condition his wife said, "You have made a new man of him."

Although gastroplication has, by very high authorities, been condemned I still practice it, and I believe with good advantage. I am convinced that it adds to the rapidity with which after fixation the stomach regains its tone. The distension of any hollow organ for a long time, whether it be the stomach, the heart or the bladder, weakens its musculature. A hyperdistended bladder from obstruction may never regain its tone after the primary cause has been removed. By reducing the size of the stomach, even moderately, its motor function is facilitated and its work actually reduced in proportion to the reduced capacity of the stomach.

The procedures for fixing the stomach vary. The shortening of the gastrohepatic omentum, the operation of Beyea, has never impressed me favorably, since the function of this omentum as a suspensory ligament is negligible except so far as its right and left borders are concerned. It is only fair to state, however, that with many this is the operation of choice, and Beyea two years ago reported on 26 cases, with only two failures. Gastroenterostomy has also been performed for the relief of the dilatation, but has little to recommend it. Indeed, many of the failures of this operation can, I think, be attributed to its having been performed where ulcer was suspected, when the primary condition was a sagging of the stomach. In my judgment, then, the proper procedure for lifting the stomach, and with it in most cases the colon, is omentopexy with the details of technic to which I have already alluded. While I do not believe that the stomach should ever be directly fixed to the abdominal wall, I would consider this paper incomplete without alluding to the very large experience of Rovsing, who three years ago in Volksman's Sammlungen and again before the International Surgical Congress reported on over 75 cases with most remarkable results. In a recent conversation with me Rosving stated that he had performed this operation over 150 times and that he had collected nearly 100 operations by his colleagues in Denmark. His operation consists of passing three sutures through nearly the entire thickness of the wall of the stomach, and passing them through the entire thickness of the abdominal wall.

In conclusion I beg to submit the following theses summarizing my views on the operative treatment of gastroenteroptosis.

(1) Every case of visceral sagging should be studied individually, and should not be treated in a routine way, whether conservatively or by operation.

(2) If after the removal of the normal or nearly normal appendix the patient continues to suffer, he should not be lightly classed among the hopeless neurotics. It is probable that the surgeon has overlooked some visceral displacements or adhesions which are the cause of the suffering.

(3) A small incision in abdominal work of the kind under consideration has signal disadvantages.

(4) The conclusion of the internists based on laboratory findings as, for example, after ingestion of a test meal, cannot be made the basis of the functional capacity of the stomach under everyday conditions.

(5) In many seemingly hopeless cases of gastroenteroptosis with marked neurasthenic symptoms operation promises relief. If this is the result of suggestion it is none the less valuable if the relief is permanent.

(6) While, of course, internal treatment, abdominal supports and postural treatment should be tried, operative interference should not be unnecessarily delayed lest the habitus nervosus becomes too deep-rooted to be eradicated.

(7) No gastroptotic patient should be operated on unless some actual functional disturbance can be demonstrated. To relieve this must be the aim of the operation.

(8) Given a visceroptosis in which we can demonstrate distinct functional incompetence or deviations the existence of nervous phenomena does not militate against operation but may be the chief reason for performing it.

MEDICAL ASPECT OF INTESTINAL ADHESION AND PTOSES.*

BY JAMES MARSH JACKSON, M.D., BOSTON.

In discussing the subject of adhesions, so far as they affect the intestinal tract, I can mention in the short time at my disposal only the most important points as they have presented themselves to me after a long and careful study of the subject both clinically and surgically; and one cannot discuss adhesions without also mentioning ptoses of the colon, for the one rarely occurs without the other.

In regard to the cause of the adhesions, most of my cases have been due to old appendicitis and peritonitis. In many of these cases there was no knowledge on the part of the patient of ever having had peritonitis, and yet at operation it was definitely shown that the original source of trouble was without doubt the appendix. In one case the peritonitis occurred at 13 years of age, but no symptoms of any trouble from adhesions appeared until after 60. This long lapse of time between cause and result is a very important point and has obtained in a considerable number of my cases.

Adhesions may be in the form of a membrane cementing, or rather binding, the coils of intestine together and to other organs or to the abdominal wall, or they may occur as bands, which may in time (possibly many years) cause kinks, as described by Lane, or partial or total obstruction.

* Read at the meeting of The Massachusetts Medical Society, June 11, 1912.

Now what are we to look for as our guide posts in such cases?

First is chronic constipation. This is relieved to some extent by diet, but we find drugs very necessary if regularity is to be established. The intestines have to be forced to do extra work in order to overcome the extra resistance which becomes more and more marked as time goes on, until we reach a time when the bowel tires out, and then comes atony or rather a debility of the bowel and the case becomes extremely obstinate. We must then resort to operation, and when this time comes we find an extensive freeing of the adhesions is necessary.

This explains many cases of chronic constipation and consequent toxemia from absorption, as evidenced by frequent attacks of migraine and sick headache which we attribute to "torpid liver," hereditary sluggishness of the bowels and other such evasive diagnoses.

And now comes the most important part of my talk and the part that I wish to lay particular stress upon, namely, colitis, as an important symptom of adhesions. From my studies of the last three years I am ready to say that I do not believe there is any such thing as hysterical colitis. This may seem very radical, but in my last twenty-five cases of colitis which have been diagnosed as nervous or hysterical by competent observers the true cause was found to be adhesions.

Case 10.—A woman of 40 who had always been well and strong except for puerperal fever when 30 years old became involved in a very disagreeable law suit. Within a short time she began to complain of severe abdominal pains coming in attacks every few days. The pain usually lasted for several hours and ended with the discharge of clear mucus. This condition persisted for about six months and practically disappeared with the clearing up of her domestic troubles.

Several months later she began to have a feeling of general discomfort in the abdomen and a tendency to constipation. Mucus appeared again in the movements, stringy in character, and occasionally in the form of a cast. In spite of all treatment she grew gradually worse until finally operation became necessary. A large number of adhesions were found, especially in the region of the cecum and transverse colon.

Since the operation conditions have been much improved but the colon has never entirely regained its tone. The nervous strain under which she labored at first undoubtedly had a great deal of influence in bringing on her colitis, but my contention is that this would never have occurred had it not been for the partial obstruction of the bowel due to adhesions.

This is only one example of many and I beg all of you to consider this before you make your next diagnosis of hysterical colitis. The textbooks have called this ailment "mucous colic," "membranous" or "mucous diarrhea," "nervous colitis," and by many other names and have advised alkaline laxatives, olive oil, diets ranging from nothing but hot milk to bran bread and coarse vegetables, massage, irrigations and innumerable other things. In a certain number of cases these methods of treatment have been successful but in a great many instances the trouble is due to definite pathological conditions of the intestine causing various degrees of obstruction, and it is to these cases that I wish to call your attention particularly, since by definite surgical measures the trouble can be corrected.

Diarrhea has been subdivided into various groups, but clinically the fine distinctions of duodenitis, jejunitis, ileitis, colitis and proctitis cannot always be made, and we must be content with a division into catarrh of the large and catarrh of the small intestine. Naturally these two conditions often coexist, but one will usually predominate and it is the involvement of the large intestine that I shall consider especially.

We may pass over in a few words the various theories of the etiology of mucous colitis. Nothnagel held from the beginning that it was a secretory neurosis without local lesions and that it was dependent on a neurasthenic condition of the patient, and many have shared his opinion. On the other hand good observers hold that the condition is a primary disease with definite lesions in or around the colon. Furthermore, if the former assumption were true we should expect to find many cases among persons afflicted with nervous disorders, but my inquiries at several hospitals for the insane have proved that this is not the case.

From personal observation I can say that one meets many difficulties in coming to a conclusion. My experience leads me to believe that while there can be no doubt that periodical membranous dejections are frequently observed in neurasthenic and hysterical women, yet—and this is the distinguishing characteristic—they scarcely ever occur without simultaneous habitual constipation. When the constipation is well marked mucous colitis occurs and it ceases only when the constipation is corrected.

With the greater attention now being devoted to this condition, and the improved methods of diagnosis, such as the x-ray used after ingestion or rectal injection of bismuth, and the scholarly researches of Cannon on intestinal action, we have recently learned a great many new facts regarding the bowels. With this valuable information at our disposal we are now able to understand and therfore to cure cases that a few years ago we should have been obliged to go at blindly. Now we are often able to recognize, and by surgery to relieve, anatomical abnormalities, either congenital or acquired, which are causing the trouble.

Mucous colitis is seen most commonly in women between the ages of 25 and 40, though it is by no means confined to that sex or to those age limits. As may be judged from its name the

most characteristic symptom is the presence in the stools of mucus in varying amounts. The mucus may be thin and glairy, or of a heavier consistency and nearly white, and may even closely simulate a membrane whence the name "membranous colitis" that is so often heard. At the same time chronic constipation of a severe character is always present.

We next come to cases of stasis. The diagnosis of these cases is always "intestinal indigestion," etc., but if you will take the trouble to have x-ray plates taken you will find that digestion is impeded by actual obstruction to some degree or lack of tonicity of stomach or intestine. With the new controls at one's command there is no need of working in the dark and groping about with idiopathic diagnoses to explain what is now a most apparent condition.

In typical cases of stasis we always find a definite group of symptoms. Following a period of constipation with more or less attendant indigestion, anorexia, hyperacidity, bloating and feeling of pressure, all of which grow steadily more severe, the patient begins to have abdominal pain which may be described as dull and dragging or colicky or merely a constant sense of discomfort, relieved only by lying down. It is usually worse when standing or walking or riding in a train or automobile. The colicky attacks may come on without apparent reason, and may or may not be accompanied by nausea and occasionally by vomiting, even of the most marked propulsive type. Distension is usually present, and may come on with great suddenness and severity. These attacks are relieved by morphia and belladonna, high enemata and cathartics, and are followed immediately by a copious discharge of mucus,—even as much as a quart at one dejection,—and in smaller quantities usually for several days. Following this "clearing out" the patient is apparently well for a time varying from days to weeks, when the cycle begins over again.

The severe acute attacks may simulate an acute intestinal obstruction, with increased peristalsis, violent pain, nausea, vomiting, anxious fancies and at times a small pulse, but there is *rarely* the prostration which we find in that condition, and furthermore the obstruction can be relieved by the measures which I have mentioned.

All these phenomena are brought about by intestinal stasis or, as I prefer to call it, "delayed traffic," which at times reaches an actual stop, with a resulting "smash-up." The passage of fecal matter through the colon being impeded by atony, kinks, adhesions or constriction bands, the colon fills up more and more, and we can readily understand the dragging pain, the headache, anorexia and distension that follow as a result of the fecal accumulation and the resulting auto-intoxication.

The location of the pain may vary with the situation of the "block." For instance, when there is obstruction at the splenic fixture the patient usually complains of griping pain in the region of the left upper quadrant, particularly when standing. If the cecum and ascending colon are particularly affected the pain is on the right side or even in the pelvis, which may in women give rise to the assumption of uterine malpositions, or of pelvic adhesions.

The elongated cecum, or even the most dependent part of a greatly enlongated transverse colon, may occupy the true pelvis, giving rise to a dull heavy pain or feeling of weight in that region and in the region of the sacro-iliac joints. On account of pressure on the rectum these sensations are much increased on defecation, the patient feeling as if there were a mass in the bowel which cannot be moved. Furthermore, straining at stool merely increases the trouble, the abdominal muscles driving the large, engorged and perhaps inflamed bowel deeper into the pelvis.[1]

On evacuating a long-blocked-up colon in one of these cases, we not rarely find in the overpowering stench evidence of the putrefaction that has been going on, and so we are not surprised to find the group of symptoms of toxemia from absorption that we frequently see. Lack of energy, progressive loss of weight, and increasing staining of the skin are the most noticeable features of this poisoning. The skin becomes thin, wrinkled, abnormally dark and "muddy" and the patient is said to look "bilious." At first this is a transitory condition, passing off with free purgation, but after a time it persists. The discoloration appears early, and is very marked in dark persons, and in such instances we may, together with certain of the symptoms, sometimes feel justified in making a diagnosis of Addison's disease. Besides the general "dirtiness" of the skin, we find areas of greatly increased pigmentation at the axillary and elbow folds, the eyelids, the groins, the labia and the inner surface of the thigh and in regions that are exposed to friction or pressure, as around the waist in corset-wearers and over the iliac crests and spines.

Another and almost constant symptom of the auto-intoxication is the marked mental depression and depreciation. The patients show all grades of neurasthenia, some becoming the typical "neurasthenic wreck," unable to concentrate the attention on anything, querulous, and a burden to themselves and everybody else. As the neurasthenia may appear before any identifiable symptoms of colitis are evident the colitis has been erroneously thought by some to be the result of the nervous condition, and thus the disease has received the opprobious name of "hysterical colitis."

There is often noticeable about these patients, especially when the traffic is particularly delayed or a block has taken place, an unmistakable odor, hard to describe but suggestive of filth and similar to that noticeable in epileptics during a seizure.

Arthritis of varying grades from a slight

"rheumatic tendency" to the severest incapacitating variety is seen not infrequently in these cases as a result of the auto-intoxication, and is relieved by restoring the proper functions of the bowels. Furthermore, the toxemia may be shown as an irritation of the kidney, with slight traces of albumin, and renal casts in the urine.

The ptoses of the cecum, transverse colon and sigmoid are all characterized by similar symptoms due to their weight and abnormal positions and to partial obstruction. In prolapse of the cecum a kink is sometimes formed in the ileum near the ileocecal valve. As this dams back the contents of the ileum fermentation takes place there and the entire small intestine may become distended with gas, producing discomfort, distress or severe pain. The tenderness in these patients is quite characteristic. It extends from the umbilicus downward and slightly to the right and is easily distinguished from the tenderness over an inflamed appendix. The pain, too, varies with the time of day, being worse when the abdominal wall is fatigued and lax, and increasing usually after the ingestion of food. It is also increased by any movement that brings a strain on the affected region, such as riding, running and going up and down stairs.

When the sigmoid is at fault, either through dilatation and stretching, or adhesions or constriction bands, it is often very tender on pressure and can be felt through the abdominal wall. If it is adherent or constricted the passage of feces through it may cause severe pain, and not infrequently it is this pain that brings the patient to the physician.

The embryology of the large intestine gives us some clue to certain abnormalities which we find. At birth the hepatic flexure is not yet formed, for the cecum lies in the right hypochondrium. It later descends and this descent may be too slight or too great. In the latter case it may go even into the true pelvis, thereby forming a reservoir hard to empty. If it reaches Douglas' cul-de-sac it may give rise to the pressure symptoms of which I have spoken, and also it is very apt to become kinked, causing acute symptoms. Again, during this descent of the cecum in infancy, the appendix or lower end of the cecum may become adherent to the posterior abdominal wall, giving rise to a retrocecal appendix and kinks in the cecum. If a cecal kink occurs in this way we are not unlikely to get a familiar group of symptoms, pain in the appendical region from distension of the appendix, together with headache, nausea, vomiting and general malaise from the attendant delay in the colonic traffic, of which the distended appendix is merely one element.

Furthermore the colon shows great variations in length, particularly in the transverse portion. Treves found that it varied from 12 to 33 inches and in one-quarter of the cases he found that its most dependent part lay below the level of the iliac crests.[2] A festooned colon such as this must necessarily be sluggish in action, particularly in the presence of exaggerated hepatic and splenic angles which are very often found. These kinks obstruct the progress of the feces and thus harmful stasis and fermentation take place.

The sigmoid also is very variable, as its length has been found to run from 7 to 27 inches.[3] An abnormally redundant sigmoid found together with sufficient symptoms is an indication for resection, but a long sigmoid without symptoms does not demand surgical interference.

Bands about the cecum may occur as a result of prolapse of that organ through the pull on strands in the peritoneum which attaches the cecum to the parietal wall, and at times these may make furrows in the cecum or even bring about kinks in it and the appendix.

Where the descending limb of the transverse colon comes in contact with the ascending colon and cecum adhesions arising from the inflammation following the fecal stasis at the kink may unite them directly to one another. This may also occur on the other side of the abdomen, between the ascending limb of the transverse colon and the descending colon. This already great obstruction to traffic becomes increased by the accumulation of feces in the transverse colon which drags it down and accentuates the kinks.

As regards the etiology of the inflammatory adhesions a single band is usually the result of some local inflammatory lesion, such as an ulcer of the colon, inflamed glands, perigastritis over a gastric ulcer, or inflammation around an appendix or a gall-bladder or a diverticulum. All these things with more widespread peritonitis may cause multiple adhesions and bands, as may also perityphlitis in typhoid, or pelvic inflammation. An inflamed appendix may be so long as to form adhesions between itself and other portions of the colon, most frequently the sigmoid. Extensive adhesions may usually be traced back to a general peritonitis, but there are cases in which there is no satisfactory explanation.

In one of my cases to which I have already referred the etiology of the adhesions was traced back to an attack of peritonitis in the patient's childhood, fifty years ago. Until shortly before operation there were no symptoms, then suddenly, probably on account of a gradual wearing out of the muscular coat of the intestines and further contractions of the adhesions, colitis appeared with extremely severe symptoms. In fact most of my cases have been in adults beyond middle life in whom the original inflammation took place in childhood. The manner in which the adhesions and bands cause the colitis is probably by giving rise to fecal stasis with consequent local irritation and inflammation of the mucosa.

As I said at the beginning of this paper, adhesions and ptosis go hand in hand, for dilatation and elongation of the proximal intestine are the natural result of long-continued effort to force material past an obstruction. This, how-

ever, is by no means the only cause for ptosis, for we find it not infrequently in persons who have lost much weight, and in women whose abdominal walls have been made flaccid and nonsupporting by pregnancies.

After visceroptosis has existed for a considerable time changes occur in the transverse colon. We find the normal pouches or sacculations between the longitudinal muscle bands become larger, the whole bowel is stretched and more capacious, and the muscle coats atrophy, resulting in atony and inability of the colon to do its work. In such cases chronic inflammatory changes in the mucous membrane giving rise to symptoms of mucous colitis are common.[4]

When we find that a patient must continually resort to severe purgatives and drastic enemata, particularly if there is also tympanites and painful peristalsis, we must consider the presence of some serious anatomic or pathologic defect.[5]

Mummery collected twenty-four cases of "angulation or kinking of the colon causing severe chronic constipation or complete obstruction and in each the condition was verified by operation or post mortem." He says further that "unless an angulation is suspected and carefully sought for it may easily be overlooked, even at operation, when the abdomen is explored. The kink often occurs only when the patient is standing and the force of gravity can pull down the pelvic colon deeper into the pelvis. When the patient is recumbent, as he naturally will be during the operation, no kink may be seen."[6]

And *à propos* of this, Lane says "the conditions presented by the viscera of a patient properly prepared for operation give one as little idea of those which exist in ordinary circumstances as do those shown by a case of varicose veins of the leg similarly prepared."[7]

These abnormalities of the intestine are very clearly shown by the x-ray, but it is not safe to rely *entirely* upon x-ray plates, for we may find very marked malpositions of the colon and a very large sigmoid without any interference with function. Operation is demanded only in the presence of marked symptoms, for probably it is only the exceptional case of coloptosis that gives trouble—and in this connection Ochsner says that he finds in 25 per cent. of his cases operated on for other conditions, marked ptosis of the colon which has never given trouble.[8]

And now we come to a most distressing class of cases: those of atonicity of stomach and intestines.

On account of chronic obstruction the digestive tract becomes tired out and unable to perform its functions normally, even with the aid of diet, drugs, electricity and massage. It has been whipped and stimulated, but now at last "lies down," tired out and thoroughly beaten. It ceases to respond to stimuli of all sorts, and it is then that we are forced to resort to surgery, but alas! too late in many cases, for although we seek to remove the obstruction and in every way make it easy for the bowel to work the reaction time has passed. The muscular coat of the intestine has become worn out and although we take off the load the poor intestine has no "kick" left. You may take out the colon, free adhesions, do a hammock operation on the colon, but it will not work, for the "gimp" has gone and no power on earth can bring it back.

These are sad cases and we are only too apt to blame the surgeon because his operation fails to relieve. The real trouble lies with us because we have not made our diagnosis early enough and called in the aid of surgery while there was yet life and strength in the intestine.

I speak freely on this point for in the past year I have seen several such cases for which there was no help and no relief except death.

Fortunately in many of the milder cases we can bring relief by medical means. What, then, shall be our treatment of them?

Laxatives. It has been my experience that licorice powder is of the greatest service, especially in conjunction with a diet largely of vegetables, as is also the use of agar-agar. Small doses of real cascara (and I say *real* cascara because I believe that most of our so-called cascara is of little use) given three times a day are valuable, or if the case responds better to salines, the use of sodium phosphate three times a day. Where colitis is present small doses of salol and castor oil are of the greatest service, and where toxemia exists great help is afforded by the exhibition of calomel once a week. High irrigations, oil,—either by mouth or by enema,—a coarse diet (vegetables, fruit, bran biscuits, coarse cereals), exercises and abdominal massage may also be employed to advantage.

In the acute attacks, however, simulating intestinal obstruction nothing gives relief except the administration of morphia and belladonna. This relaxes the spasm and allows the passage of mucus and feces often in enormous amounts shortly after. Following this, irrigation of the entire colon—which can be done only by an expert—accomplishes a thorough cleansing of the bowel.

Recurring attacks of this sort, however, point to an obstruction to the permeability of the bowel, and if nothing else can be found to account for the symptoms, operative interference is indicated. In some cases an appendicostomy may suffice since in this way through-and-through lavage of the colon may be effected whenever there is apparent any tendency to stasis. In the more severe cases nothing will do but an exploration of the whole abdominal cavity, and the freeing of adhesions, division of bands and stitching up of a prolapsed cecum or transverse colon, or resection of a portion of a redundant sigmoid.

These measures sometimes bring complete relief, but in some cases the colon has lost so much of its muscle coat and has become so stretched and atonic that months of treatment by strych-

nia, laxatives, massage and warm irrigations of salt solution may be necessary to restore the tonicity and bring the bowel back to something approaching its normal condition.

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DANGERS INCURRED AS A RESULT OF THE NON-RECOGNITION OF ACUTE AURAL INFECTIONS, WITH STATISTICAL DATA.*

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THIS paper is read with a feeling of hesitancy for two reasons; first, because of its seeming egotism in that the writer is compelled to compare the work done in his immediate vicinity with that of other sections of his state; second, the paper may be deemed critical of the work of others. It is not, however, presented with any purpose of criticism, but to call attention to thoughts that have suggested themselves as a result of experience in southern New Hampshire.

The same criticisms undoubtedly would apply to any one of our group of states, more particularly to those sections away from the metropolitan centers where people have the privilege of free dispensaries and do not hesitate on account of expense to apply for aid for what they consider minor ailments.

In the record of deaths made by the New Hampshire State Board of Health for the years 1906, '07, '08 and '09 there were eight hundred and fifteen (815) deaths from simple meningitis and thirty-six (36) from encephalitis. These cases were about evenly divided between each of the four years. Those diagnosed as cerebro-spinal or tubercular meningitis were not included in the eight hundred and fifteen (815) mentioned. Deaths from brain abscess were reported under diseases of the brain, and those from septic meningitis were listed as simple meningitis.

In the records published for 1908 and '09 a summary for twenty-six (26) years is given of the deaths in New Hampshire, a state of about 400,000 people at the present time. There were during that period five thousand one hundred and forty (5140) deaths from simple meningitis. It is interesting to compare this number with deaths from other causes for the same time.

From diphtheria and croup	2,510
From pulmonary tuberculosis	17,122
From scarlet fever	675

* Read before the New Hampshire State Medical Society, May 9, 1912.

As you will note there were twice the number dying from so-called simple meningitis as from diphtheria and croup, and nearly half this period was before the use of anti-toxin, when diphtheria was extremely fatal; over seven times the number of deaths from meningitis as from scarlet fever; and about one-third as many as from pulmonary tuberculosis.

I have no record as to ages for the twenty-six years, but for the four years from 1906 to 1909, inclusive, there were 815 deaths from so-called simple meningitis.

Under one year	244
From one to five	234
From five to ten	71
From ten to twenty	93
Over twenty	170
Unknown	3

Of these 450 were males and 365 females. The number in strictly rural communities was a little less in proportion to the population than in the cities of the state. Over two hundred deaths a year from meningitis, not including cerebro-spinal or tubercular meningitis, seemed surprisingly large to me.

There are no means of determining the cause of infection in these cases or the character of any individual case but, as it is a well established fact that suppurative disease of the ear is by far the most frequent cause of septic meningitis, it is fair to assume that a large number of these cases were due primarily to middle ear infection. If this assumption is correct it would follow that many of these deaths were preventable had timely aid been sought and given to eradicate the cause.

From my own experience in brain abscesses and other intra-cranial complications arising from middle ear sepsis I was led to wonder if they were as common in other parts of the state as in the vicinity where I reside. All the hospitals in the state, of which record could be found, twenty-five in number, were communicated with and inquiries made as to the number of mastoid cases operated upon and the number of brain abscess cases recorded from January 1, 1906, to January 1, 1910. All but two small hospitals in the northern part of the state replied. There were ninety-four operations for mastoid disease reported for the four years. Thirty-five (35%) per cent. of that number were operated upon in the two hospitals where I reside, drawn from a comparatively small proportion of the population of the state.

To support my belief that many of these deaths from meningitis might have been due primarily to septic middle ear trouble and mastoid disease, I wish to compare the number of mastoids operated upon in the two hospitals with which I am connected, during the four years under consideration, with those of two other places and also to compare the number of deaths from meningitis in the same places.

During the four years mentioned, in Nashua, a city of between twenty-five and thirty thou-

sand people, there were thirty-three mastoid operations. There were fifty-three deaths reported in that same city from meningitis, including septic meningitis. In another city with three times the population, according to hospital reports there were twenty mastoid operations during that time and *Two Hundred and Fifty-three Deaths* from meningitis. This showing—five times as many deaths from meningitis, and two-thirds the operated mastoids, in a much larger center of population—is certainly suggestive. Another community of ten thousand (10,000) population reported two mastoid operations for the four years, and sixty-two deaths from meningitis. These are all three manufacturing towns or cities with a population largely of the same character.

These figures may mean nothing, but I cannot but believe they are very significant and that more frequent recognition of septic middle ear trouble with mastoid involvement, with operative relief for the same, would lessen the number of deaths recorded as from simple meningitis.

I realize there might have been cases operated upon in each of these places mentioned outside of the hospitals of which I have no report and many undoubtedly have gone out of the state to seek relief. But those factors would apply to any one of the three places mentioned. None of my cases operated upon outside of the hospitals are included in this report.

Were the recognition of septic conditions of the middle ear, including mastoid involvement, more frequent, and as prompt response made to the imperative demand for surgical intervention as is given in acute appendix cases, there would, I am convinced, be a much smaller number of deaths reported from simple meningitis.

The frequent similarity of the symptoms of meningitis and brain abscess; the fact that a localized meningitis often co-exists with brain abscess, and the fact that the general practitioners are usually unfamiliar with the latter condition, would presuppose that some of the deaths thought to have been due to meningitis were in reality the result of brain abscess.

The mortality following operations upon uncomplicated mastoid infections is low. In seventy acute mastoid cases, including those with intracranial complications, that I have operated upon from January 1, 1906, to the present date there were eleven deaths. Five of these were the result of brain abscess, four of which showed evidence of cerebral infection previous to the mastoid operation. The other six died from meningitis. Three of these presented marked meningeal symptoms prior to mastoid operation and three developed the complication at a later date, giving a mortality of four in sixty-three cases of apparently uncomplicated mastoid infections at the time of operation, or about six per cent.

It is at times very difficult to recognize the existence of an acute aural infection and the beginning of an intra-cranial complication, as the following case will illustrate:

A little girl of six years, with a history of recent scarlet fever. Slight pain in one ear at the time, discharge for a day or two and no further symptoms of any aural trouble. The usual recovery was made from the scarlatina. Several weeks following, the child not being well, the physician was summoned and found a temperature of 100° to 101°. There was a slight rise of temperature for the next few days, the doctor seeing the case usually in the morning. No other symptoms of note. Happening in one afternoon he found temperature 105°. That day mention was made of an uncomfortable feeling in the ear. The following morning I was called in consultation. Found temperature about 100° and the child up and feeling pretty well. There was no earache and no tenderness over the mastoid. Drum was darkened and seemed to bulge slightly. Incision under ether released a few drops of thin fluid. That night, temperature went to 105° again and the next morning the mastoid was operated upon. It was diseased and contained pus in quantity. The child continued to grow worse and was later seen with me by a Boston specialist. Search was made for a thrombus but none found. The little one died a week later with every evidence of meningitis.

This case also emphasizes the importance of always keeping the ear in mind as a possible causative factor whenever any symptoms indicative of sepsis appear, especially when following a contagious disease.

There were, in my own immediate vicinity, from 1906 to 1909 inclusive, five known cases of brain abscess; one the result of a sphenoidal sinus infection, as shown by post-mortem; four of them complicating a middle ear infection; three demonstrated to be such by operation, two of which proved fatal, and one not operated upon but in which a post-mortem discovered a brain abscess. There was one suspected case with marked typical symptoms, operated upon and none found, but in which later symptoms would indicate the possibility of an encysted abscess.

Throughout the rest of the state, during the period mentioned, there are records of seven cases diagnosed as brain abscess; two proved such by operation, all fatal with no post-mortem.

Since 1909 I have seen three more cases, all fatal; one complicating an acute middle ear abscess and mastoid, and two infected by chronic middle ear without mastoid infection. I have also seen, since January 1st, 1910, several cases of septic meningitis resulting from aural infection, too late for operative measures.

There are no hospital cases of lateral sinus thrombosis reported other than my own, six in number, which were proved to be such by operation, only one of the number being fatal.

One very interesting case of the latter condition I will outline; that of a girl from a Massachusetts town, seven years of age, seen in December, 1910. History of having had slight pain in ear at intervals covering a period of between two and three years,

with scanty discharge at times. Ten days previous to my visit she had been having a little more pain than usual and a rise of temperature to 105°. This condition continued at intervals for ten days, temperature at times nearly normal. When I saw her in consultation, temperature was 101°, the previous evening it was 105°. She was a very frail, anemic looking child. There was no swelling over the mastoid and but a slight moisture in canal of ear. No neck symptoms. Seemingly no tenderness over the mastoid, though it was difficult to decide as to that for the child cried upon the slightest provocation.

Diagnosis was made of possible mastoid disease complicated with a thrombosed lateral sinus. Child was removed to Nashua and placed in St. Joseph Hospital and operated upon later the same day. Mastoid was found filled with punky bone and soft granulations which bled freely. Wall of the lateral sinus was partially uncovered and looked healthy. Even though the wide range of temperature and my better judgment led me to suspect a clot in the sinus, I hesitated about operating further. Three days later, the child's condition not having improved, I ligated the jugular, thoroughly exposed the sinus, opened the same and found a clot extending from about one inch posterior to the knee down very nearly to the bulb. Examination of the pus by Dr. Leary of Tufts College Medical School showed it to be a streptococcus infection. Frequent injections of an autogenous vaccine were given in this case. The child made an excellent recovery.

Judging from condition of the child and temperature chart, I suspect this sinus was thrombosed for a period of ten days at least. Moreover, this was a most difficult case for the practitioner to diagnose.

As to why all the cases of lateral sinus thrombosis, mastoids complicated with meningitis, and nearly one-half the brain abscesses reported in the state for four years should occur in a comparatively small section of the state, I cannot say, but I cannot believe otherwise than had a post-mortem examination followed each of those eight hundred and fifteen (815) deaths from meningitis, many complicated middle ear and mastoid infections would have been revealed.

The one safe course to pursue to avoid deeply seated aural infections, together with their intra-cranial complications is by means of preventive surgery. By this is meant prompt surgical treatment of the abscess in the middle ear. A free incision of the drum membrane made as quickly as possible following a diagnosis of probable presence of fluid in the middle ear cavity will in the great majority of cases prevent further difficulty. Spontaneous rupture of the tympanic membrane does not necessarily mean free drainage, and by no means contra-indicates further interference by the physician. Should pain continue, even to a slight degree, or there be any rise of temperature, it would mean impeded drainage, and there should be no hesitation in freely incising the drum. This procedure is not alone for the purpose of preventing a more dangerous condition, but it hastens convalescence and may prevent a chronic running ear with its attendant discomforts. A clean linear incision heals promptly with no interference of hearing, while a spontaneous rupture through a swollen and ruptured membrane heals by cicatrization if at all and interferes with the normal function of the ear.

It is frequently difficult to diagnose an infection of the mastoid and to say whether or not an operation may be necessary. To one accustomed to the use of the head mirror and the aural speculum, much information may be derived by frequent inspection of the middle ear, noting the changes there occurring. This of course would necessitate some experience and the ability to properly interpret those changes. As a further and more simple means in assisting one's judgment, I can do no better than quote from a recent essayist:

[1] "Another important aid to diagnosis is the careful observation of the quantity and character of the discharge from the ear. A serous discharge, usually yellow, sometimes hemorrhagic, is always to be expected in the early stage of acute abscesses. So long as it remains serous, little danger is to be apprehended, although without much question where there is profuse serous discharge, the membrane throughout the whole mastoid is inflamed. It is when the discharge becomes purulent that we must be especially on the watch. Pus coming from the tympanic cavity in moderate quantity is probably manufactured in that cavity; if it contains a large mucous element, that is cause for congratulation, as this usually means speedy recovery; if it steadily increases in quantity and becomes very thick, it means that the mastoid is full of pus, even although there be no swelling over, or tenderness of that bone."

It will be well to remember that dangerously infected mastoids may be present without presenting the usual symptoms as formerly taught; that swelling posterior to the ear is present only late in the course of the disease; that marked tenderness usually subsides with acute inflammatory symptoms; that the temperature chart is similar to that of appendicitis, not always a safe guide—a temperature nearly normal not necessarily meaning absence of danger, while a high temperature should cause one to suspect some serious complication. I would further call to your attention the fact that the absence of free pus in the mastoid cells does not necessarily mean a case operated upon unwisely, for there may be present in the mastoid antrum and scattered throughout the cellular structure highly infective granulations. This condition is far more dangerous to life in an individual where the bone is dense and sclerosed with but very few small cells, than would be the case were a large quantity of free pus present in large pneumatic cells, the outer wall of the mastoid structure being thin. In the latter case the pus might easily rupture through the bony wall externally. In the former condition infection could more readily find its exit internally.

[1] "The Importance of the Early Recognition of Suppurative Otitis Media." By Philip Hammond, M.D., Boston, Mass.

I would say in closing—in all cases seemingly septic in character, where any doubt exists as to the seat of the infection, careful thought and attention should be given to the condition of the middle ear and adjacent structures.

Should a condition there be found that would reasonably account for general symptoms present, it should be as unhesitatingly treated as would any septic condition in the abdomen.

INVERSION OF THE UTERUS.*

BY HILBERT F. DAY, PH.B., M.D.

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When asked to read a paper at a meeting of this society I chose the subject of uterine inversion because the general surgeon knows comparatively little about the condition since it is relatively rare in communities which have well trained obstetricians and because it has been my fortune to see one case and learn the details of another, neither of which cases have been previously reported. Both cases occurred outside of Boston.

In the first case of uterine inversion, which was one of the acute type, the patient was a multipara 32 years old and it occurred after her third delivery. The first two labors were normal but this one was precipitate. The attending physician said that after the birth of the child he creded out the placenta which came away easily. Very shortly afterwards he noticed that his patient was suffering from shock and sent for assistance. When seen about two hours after delivery the patient had somewhat recovered from her shock but was bleeding more than she normally should. By a vaginal examination a diagnosis of inverted uterus was easily made and the uterus was reinverted without much difficulty by taxis, and then it and the vagina were packed with sterile gauze after a hot intrauterine douche. The peurperium was otherwise uneventful.

The other case was of the chronic type. It was recounted to me by a surgeon in another state who showed me the uterus. According to the history the patient had had one normal delivery. She got about in the usual time after confinement and thought she was perfectly well. Some months later when lifting a wash tub she had a bearing down feeling and felt pressure on her perineum. Because of that and because of some irregular flowing which she had she consulted the before mentioned surgeon who advised operation, and later performed a complete abdominal hysterectomy. The patient's subsequent history was uneventful and she was discharged from the hospital during the third week after operation.

By an inverted uterus we mean a uterus turned inside out, either partially or completely. Inversion of the uterus is divided into three degrees, simple depression of the fundus, depression of the fundus to the cervical orifice, and complete inversion. The last condition may be complicated by prolapse of the uterus and vagina. In this case the uterus will be entirely outside. When we have complete inversion a hollow pear-shaped mass projects into the vagina with the stem end up.

VARIETIES.

There are two kinds of inversion, acute and chronic. The diagnosis of the chronic form is harder, because adhesions may form between the tumor and the vaginal walls. Also the peritoneal surface decreases in size and the mucous surface increases. The acute form is far more common and is practically entirely of puerperal origin. It is usually caused by injudicious pressure on the fundus after delivery or by traction on the cord while the placenta is still attached. A uterus is predisposed to this when its musculature has been exhausted or lacerated during a severe and prolonged labor so that the contractions stop. They may begin suddenly again and assisted by intra-abdominal pressure cause the condition. Many authors claim that it is always preceded by paresis of some portion of the uterine wall. According to the literature it occurs more frequently in primiparae and generally after a full term labor, though several cases have been reported of its occurrence after a three months' abortion. Chronic inversion generally is simply a continuance of the acute form (for in some cases the condition is tolerated fairly well as in the case reported at the beginning of this paper) or it may be produced gradually by the expulsion of a fibroid polypus attached to the fundus of the uterus. This polypus may remain attached after inversion or may slough off, simply leaving a scar to explain the cause of the inversion.

FREQUENCY.

The acute form is rare in good obstetrical practice and therefore seldom seen in hospitals, but is more apt to occur when an inexperienced midwife attends a case. For instance, not a single case occurred in the St. Petersburg Lying-in Hospital in 250,000 deliveries, while in Dublin Madden noted it but once, complicating the third stage of labor, in 190,833 deliveries. Guidal[26] remarks that only three cases were encountered among 4064 gynecological patients at the Copenhagen Deaconess' Hospital. These patients were cases not delivered in the hospital, but sent there for treatment of the chronic condition.

SYMPTOMS.

In an acute case the chief symptoms are hemorrhage (generally profuse) and shock out of all proportion to the amount of blood lost; in the chronic cases, the symptoms of shock having disappeared, we note hemorrhage, irregular and more or less profuse; secondary anemia; syn-

* Read before the Boston Surgical Society, July 18, 1912.

cope; irritability of the bladder; weakness; pain and backache. Any one or all of these symptoms may be absent.

DIAGNOSIS.

An inverted uterus is easily diagnosed in the acute form because of its being a pyriform tumor, larger below than above, with a red, bleeding surface. Externally this tumor is covered by the uterine mucosa. Internally the cavity is lined with peritoneum, and between these surfaces lie the muscular coats of the uterus. An aid to diagnosis is the inability to palpate the uterus in the abdomen, which you may be aided in ruling out by a finger in the rectum with a sound in the bladder, (though the presence of a subperitoneal myoma may be mistaken for a fundus in normal position[3]). A further diagnostic point is the demonstration of the orifices of the Fallopian tubes on the surface of the tumor, and by the demonstration of no point of attachment of the symmetrical tumor by sweeping your finger or a sound about its base.[36] The sound will enter the ring of the cervix but a short distance. It is needless to say that a mistake in diagnosis may be fatal to the patient.[17] In cases which have recently occurred the uterine end of the Fallopian tubes and the utero-ovarian ligaments may be found within the peritoneal pouch, with the ovaries and fimbriated ends of the tubes immediately above it. In cases which have become chronic, however, only the innermost portion of the broad ligament remains in this pouch. The peritoneal pocket of the tumor is about one inch in depth, and has but a narrow slit communicating with the general peritoneal cavity.

PROGNOSIS.

The prognosis is unfavorable if the condition is neglected. Spontaneous reposition has been reported but it is rare.[2] Death may occur due to immediate shock or secondary hemorrhage, or in the chronic cases to anemia, also to an unskillfully performed operation.

TREATMENT.

Under this heading should be mentioned emphatically the necessity of having a confinement case attended by an obstetrically trained physician, thus practically insuring the patient against such an unfortunate accident, although McCoy[8] of Columbus, Indiana, in 1890, reported a case which occurred while he was carefully holding the fundus after the delivery of the placenta. The sooner treatment of an acute inversion is begun, the better chance will the patient have for complete recovery. In general before reinversion is tried the patient must be treated for the symptoms of shock and loss of blood. Then of course an attempt will be made to reinvert the uterus. A case seen immediately after occurrence can almost always be replaced without a cutting operation. This ordinarily should be attempted without an anesthetic because the anemic condition of the patient renders anesthesia more dangerous and also because the patient is less sensitive following shock. In general the French[24] writers recommend the administration of ether if necessary and the English doctors that of chloroform. I personally should prefer the administration of ether. There is some difference of opinion as to how to deal with the placenta if it is still attached to the uterus. Galabin[7] says, "If the placenta is still attached it should be peeled off first, because the size of the mass to be returned is by that means considerably reduced." Whitredge Williams[29] says, "If the placenta is still attached to the uterus it is generally advisable to defer its separation until the reposition has been effected, because the contractile function of the inverted uterus being in abeyance there is always the risk of profuse hemorrhage." Herman[6] says, "If the placenta is still attached to the uterus it matters little if you detach it or not. If you can peel it off quickly, do so. If not, reduce the inversion with the placenta attached." There also seems to be some slight difficulty in differentiating the placenta and separating it from the underlying mucosa. From my review of the literature I should advise removing the placenta because none of the cases so treated seem to have bled any more profusely[37] and it is true that the mass to be reduced through a contracting os is then considerably smaller. Reposition may be accomplished either manually, by repositors or by a cutting operation. In general the acute cases may easily be replaced by taxis and the chronic cases necessitate an operative interference. The repositors are out of date and not a proper surgical procedure. In a general way taxis is applied as in reducing a hernia, but several modifications of the same process may be mentioned.

Emmet says that the whole hand inserted in the vagina should grasp the portion of the uterus within the cervix with the fingers, and then make pressure on the fundus with the palm of the hand, counter pressure on the cervical ring being obtained above the pubes with the other hand on the abdominal wall.

Noegerrath uses counter pressure from above but places the thumb and middle finger of the other hand against the uterine horns making pressure upon one and then upon the other, and so after reinverting the horns he replaces the fundus.

Courti describes inserting two fingers in the rectum to make traction on the cervical ring while pressure is applied with the other hand on the fundus.

Tate of Cincinnati suggests making traction upon the cervical ring by two fingers in the rectum and an index finger passing through a dilated urethra into the bladder, the thumbs then pressing up the fundus.

A very sane method is described by Patrick[27] of Montreal who suggests depressing the most prominent part of the fundus with the fingers

or knuckles and keeping a continuous pressure within this indenture. The reinverted tissue thus acts as a wedge dilating the cervix and passing up into the pelvis. After the uterus has been replaced by any one of these methods it should be washed out with hot sterile salt solution and then it and the vagina should be packed with sterile gauze for twenty-four hours.

The methods of reduction by repositors which I have before decried as obsolete and dangerous were formerly accomplished by (a) the instruments of Lawson Tate, (b) the apparatus of White and Aveling, which had a cap to be applied to the fundus and attached to a curved rod at the end of which rubber bands were fastened leading to attachments with an abdominal belt, (c) the use of Champetier de Ribes bags.[21]

Many operative procedures for a chronic inversion have been recommended and will be briefly noted here. They may be roughly divided into vaginal operations and abdominal operations, and the vaginal operations are:

A. Posterior operations. (1) Browne's incision through the posterior wall above the os. Through this incision the constricting cervical ring is dilated and reinversion accomplished after suturing the incision.[12] (2) Kustner's Operation which begins with opening the peritoneal cavity above the uterus in the pouch of Douglas. Attempt a dilatation of the ring through this incision. In case of failure, incision of the posterior uterine wall from two centimeters above the external os to two centimeters below the fundus. Reinversion through this opening and suture of the incision through the transverse cut in the cul de sac.[5] (3) Piccoli modification of Kustner's operation. In addition to the transverse cut in the cul de sac, the posterior uterine wall is cut from the external os to or nearly to the fundus. Then reinversion and suture of the incised wall from the vagina.[6]

B. Anterior operations. (1) Kehrer's Operation. The anterior wall is incised from the external os for a varying distance upward. The fundus is reinverted and the incision sewed up as far as the internal os before being pushed through the severed ring. The remainder of the incision is sewed up from the vaginal side.[5] (2) Spinelli's operation which is as follows:—With the patient in the lithotomy position, the vagina and surrounding parts should be exposed and cleaned. As the handling of the inverted uterus causes profuse oozing from the general surface, warm moist pads should be wrapped around it and taxis having been tried and found ineffectual, each lower lateral corner of the uterus should be grasped by tenaculum forceps and downward traction exerted. A transverse incision should then be made just where the anterior vaginal wall is reflected off from the cervix. The bladder should then be pushed out of the way and the uterine wall exposed. Then the anterior margin of the cervix should be seized on each side of the middle line by volsella and the uterus divided between them with long straight scissors. As soon as this incision has been carried beyond the cervix into the body of the uterus, attempts should be made to replace the inversion. The uterine incision may be carried to within one-third of an inch of the fundus. When the reinversion has been accomplished (that part of the uterus which is near the roof of the vagina being reduced first) downward traction should be made on the uterus by means of the tenaculum forceps already attached to the cervix on each side of the incision. At this point Peterson of Ann Arbor recommends shortening of the round ligaments through the incision. The peritoneal edges then should be approximated and held together by two rows of interrupted catgut sutures. [In long standing cases in which the peritoneal surface has become much smaller than the mucous surface and it is found that the muscular walls and the mucous surface bulge through the incision and prevent opproximation, removal of the excessive tissues before suturing has to be done, to avoid undue tension. This was first suggested by Taylor in 1902.[15]] The vaginal incision should then be completely closed or partially closed and drained, and the uterus packed for twenty-four hours with gauze.

The anterior operation is preferable to the posterior operation because when doing it one has a much better view of the operative field, thus more easily detecting and controlling hemorrhage, and the final suturing of the uterus is performed more easily after reposition. Also after the posterior incision adherent retroversion is the result in about half the cases. One may reasonably ask whether it is worth while restoring a uterus after so completely cutting through it, as is done in either complete anterior or posterior colpohysterotomy, and some surgeons advise sterilization of the woman at the time of operation, but the subsequent histories of these cases as far as reported have been very favorable. Menstruation has occurred normally and Bonte,[4] Dahlgren,[9] Born,[11] Kustner,[5] and Keilman[23] have witnessed entirely normal pregnancies following a similar operation. It is unnecessary to say that any pregnancy following such an operation should be supervised with special care. As a general thing a woman who has had an uterine inversion does not have an absolute Cesarian pelvis and therefore the uterus during labor will not be put to excessive strain.

C. Amputation of the uterus and complete vaginal hysterectomy. No description of this operation is necessary here.

By the abdominal route two operations have been recommended. One consists in exposing the peritoneal pouch caused by the inversion and dilating it with the fingers or instruments. It was first recommended by Dr. Thomas[1] of New York in 1869. L. V. Friedman of Boston strongly advocated this method in his paper published in 1906, but both of the cases he then reported were of under a week's duration. I agree with him that such an operation is good

for very recent cases of inversion when taxis fails but I feel sure that if the inversion was of long standing the ring could not be dilated sufficiently and a cutting operation would have to be done. Also laparotomy is not safe in the presence of marked anemia. Peterson's tables show eight failures in twenty-one cases. The other method of operating through a laparotomy wound is an abdominal hysterectomy. Guidal[26] recommends this as the only procedure if with an inverted uterus there are many adhesions found.

This paper should not be closed without mentioning the peculiarities of a few cases in the literature. In one case a short cord acted in the same way as pulling on the cord by a mid-wife and inverted the uterus.[30] In this case the shock was entirely out of proportion to the amount of blood lost. Johnstone[31] in 1909 reports another case caused by pulling on the cord. With this patient there was practically no shock and the uterus was returned after a month. Another reported case of inversion replaced itself spontaneously shortly after being diagnosed. In still another case the mid-wife succeeded in tearing away the uterus thinking it a second placenta.

CONCLUSIONS.

Inversion of uterus is rare and will be rarer with the decrease of untrained accoucheurs.

Acute inversion should be reinverted as soon as possible.

Chronic inversion demands operation as soon as the patient's condition warrants it. Thomas' operation if within ten days of occurrence and the patient is not exsanguinated. Spinelli's operation for later cases.

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ASSOCIATION OF AMERICAN PHYSICIANS.

TWENTY-SEVENTH ANNUAL MEETING, HELD AT ATLANTIC CITY, N. J., MAY 14–15, 1912.

Second Day: Wednesday, May 15.

(*Continued from No. 10, page 333.*)

A CONTRIBUTION TO THE SYMPTOMATOLOGY AND EARLY DIAGNOSIS OF THROMBOPHLEBITIS.

DR. LEWIS A. CONNOR, New York: Thrombophlebitis occupies a much more conspicuous place in the clinical picture of typhoid than is commonly supposed. Among 1540 cases of typhoid treated in the New York Hospital it was observed in over 5%, and there is much reason to believe that this figure fails to represent its actual frequency. The condition seems to begin usually in the small veins of the legs and feet, and the classical symptoms of femoral phlebitis may be lacking altogether or appear only late in the course of the affection. Pulmonary embolism and infarction is a frequent complication of such thrombo-phlebitis and occurs usually at an early stage of the affection — often many days before any signs of phlebitis are apparent. Such emboli are almost always small and seem to come from the newly forming thrombi in veins which are not yet completely occluded. Large, fatal pulmonary emboli are very rare. Among 78 cases of proved thrombo-phlebitis pulmonary embolism was observed in 29 (33%). In two-thirds of these latter cases the pulmonary symptoms appeared before the phlebitis was recognized. The symptoms appear suddenly and may be slight or severe. They include pain, cough, dyspnœa, cyanosis, bloody expectoration, etc. The physical signs may be those of a slight, dry pleurisy, of lobar pneumonia or of extensive plastic pleurisy. Pulmonary symptoms suggestive of embolism occurred in a number of cases of typhoid in which no frank signs of phlebitis were observed. It is safe to say that most of the pulmonary and pleural complications of the later weeks of typhoid are of embolic nature and arise from phlebitis either latent or obvious. The post-typhoid "septic" chills are, in most cases at least, associated with the presence of thrombo-phlebitis. It seems probable that the condition known as "tender toes" is related in some way to thrombo-phlebitis in the sole

of the foot as phlebitis and "tender toes" are very frequently associated. It is suggested that "tender toes" may be due to a neuritis of the plantar nerves which is caused by extension of the inflammation of the plantar veins which run in close proximity.

DISCUSSION.

Dr. F. P. Kinnicutt, New York: Since my attention was called to this condition by Dr. Connor, a study of several cases presenting clinical phenomena similar to those described have convinced me of the probable correctness of the explanation offered by the author of the paper. In the matter of tender toes, the consensus of opinion is that it is due to a neuritis, but the suggestion that the neuritis was a secondary process seems very reasonable. The sequence would be a thrombo-phlebitis, a periphlebitis and extension of the inflammation to the nerve branches immediately contiguous to the affected vein.

Dr. E. Libman, New York: For some years back I have suspected that the sharp temperature rises and the chills seen in cases of typhoid fever, particularly toward the latter part of their course might be due to thromboses. In such cases blood cultures are often negative.

Dr. W. S. Thayer, Baltimore: I have long been interested in the relation between the post-typhoid chill and the unaccountable rise of temperature and later appearance of thrombosis. It seems an important matter and the evidence Dr. Connor brings is peculiarly suggestive. One point that he has forgotten is the frequency of pulmonary thrombosis in these cases. I have seen in several instances thrombosis of pulmonary arteries and not anywhere else could it be found.

Dr. B. Sachs, New York: In the senile and presenile period these conditions are extremely frequent, although very generally overlooked. I am very certain that many of the conditions, not only of moderate paresis, but particularly of pain occurring in older persons, are distinctly due to the condition of thrombo-phlebitis in the lower extremities. Cases of this sort are also similar to the anatomical conditions found in erythromelalgia. Some years ago it was supposed that the neuritis was the primary condition, but now it is established that thrombo-phlebitis is the primary condition and the neuritis is entirely secondary.

Dr. Lewis Connor, New York: I am glad to have Dr. Sachs bring out the point that thrombophlebitis in conditions other than typhoid fever is a common thing. I am sure we must look out for it in the future much more than we have in the past. It is found in all serious conditions and in persons otherwise apparently well. In post-operative cases surgeons are seeing these cases all the time and not recognizing them, usually of pulmonary symptoms a few days after operation and then, if they watch carefully, indications of phlebitis in the extremities.

A NOTE ON FATAL CASES OF POST-OPERATIVE EMBOLISM.

Dr. Louis B. Wilson, Rochester, Minn.: We have tabulated our cases up to September, 1899, and no fatal case of embolism occurred during those ten years. There were over 6000 major operations done. On September 13, 1899, our first case of septic embolism occurred and we have had 47 in about 57,000 cases. We had one fatal case in over 1200 operations. Why did we have none in the first 6000 when we were due to have five? There was no material change in the operators, nurses, anæsthetists, anesthetics — ether by the drop method had been used from the beginning—or convalescence. The patients were all gotten up as soon as possible. That has been the policy of the institution since it was founded. There were two possible reasons which suggested themselves. During the first twelve years of the clinic nearly all operative cases were drawn from the private practice of the staff. Very few referred cases were operated upon and consequently were operated on earlier than are now referred cases. Second, in going over the regions in which operations were performed we find that, while the average percentage of mortality of all cases during the last twelve years has been .08 of one per cent., in operations upon the stomach, gallbladder and intestines it has been three times this.

AN EXPERIMENTAL STUDY OF THE RETENTION OF FOREIGN PROTEIN BY THE KIDNEY.

Dr. R. M. Pearce, Philadelphia: Extracts of the kidneys of normal rabbits prepared one, two, three and four days after the intravenous injection of egg albumen and horse serum have the power to sensitize guineapigs to a second injection of these proteins; the sensitization to first and second day extracts being constant and of great degree, that of the third day less marked and sometimes lacking, and of the fourth day only rare and always weak. Comparative studies of the power of the blood, liver and kidney to sensitize indicate that this sensitization depends on the contents of foreign protein in the circulating blood and not upon its accumulation or fixation in the tissues of an organ. This opinion is supported by other experiments in which the sensitizing power of the blood and of the extracts of unwashed kidneys was compared with the sensitizing power of extracts of washed kidney. The weak sensitizing power of washed kidney extract is taken as evidence that foreign proteins of the kinds used are not closely bound to the tissues of the kidney and if these results may be applied to nephrotoxic protein, it follows that nephritis is not due to selective and persisting fixation of a protein by the renal cells, but is due to the action of such protein merely during the process of its elimination. In experimental acute nephritis of the type due to uranium nitrate, the power of sensitization to that of egg albumen is prolonged for twenty-four hours and in the chromate type for forty-eight hours, thus indicating that in nephritis, of the acute type at least, the elimination of a foreign protein is delayed. Attempts to study by the same methods the elimination of vegetable and bacterial proteins have failed.

Dr. M. J. Rosenau, Boston: It seems to me very clear that this protein matter, as has been pointed out by Dr. Pearce, is in the blood rather than fixed in the tissues of the liver and kidneys. The work interested me from the standpoint of using anaphylaxis, and, as to the use of this as an instrument, I am prompted to throw out the caution that we have as yet no delicate means of determining when anaphylaxis is present or absent. The methods so far are crude. There must be evident indications on the reacting pig before we can say whether the reaction has occurred or not. That is one point in the particular biological phenomenon which needs to be cleared up in order to make it a more delicate

means of determining some of these things for which the reaction is used. Further, it is not a quantitative test at all, merely a qualitative test.

DR. L. F. BARKER, Baltimore: The experiments are very interesting as throwing light on the time required by the protein to go through the kidney. In the normal kidney the length of stay in the epithelium is very short. It is exceedingly interesting to experimental physiologists that the kidney is able and eager to get rid of foreign proteins from the blood. Egg albumen and bacterial proteins are excreted.

ON THE PRINCIPLES OF TREATMENT IN NEPHRITIS.

DR. MARTIN H. FISCHER, Cincinnati: All the changes that characterize nephritis are colloid-chemical in nature and are due to a common cause, namely, to an abnormal production or accumulation of acid (and substances that act like acid) in the kidney. To this are due the albuminuria, the morphological changes in the kidney, the associated formation of casts, and the changes in the quantitative output of water and dissolved substances by the kidney. All nephritides are parenchymatous nephritides and differ only in that the changes in some are general (parenchymatous nephritis), while in others they are local (chronic interstitial nephritis). The fact that healthy kidney tissue exists between the patches of parenchymatous nephritis in the latter case accounts for the scarcity of urinary signs in the latter disease. The relief of nephritis depends upon a removal of as many as possible of the conditions that are responsible for the abnormal production or accumulation of acid in the kidney, and a direct combatting of the acid condition and its effects on the kidney. To this end there are indicated alkali to neutralize the acid, salts, including NaCl, to reduce the effects of the acid on the kidney, and water that this may be present in a "free" state for urine. The generalized œdema, the "uræmia," etc., which are usually regarded as secondary to the kidney disease are really part and parcel of the same intoxication. They represent in other organs what in the kidney is called nephritis.

DR. T. C. JANEWAY, New York: There is one change of rather marked importance which Dr. Fischer has not duplicated in any way in his acid experiments, which clearly deserves consideration, namely the presence of fat and fat of a peculiar kind in the tubular epithelium, showing evidence of cell degeneration taking place. When one comes to the problem of whether the kidney in nephritis is always acid of course it is somewhat rash to make positive statements. I have been interested in trying the administration of alkalies. Hirschmann found that the administration of alkali resulted in marked improvement in excreting water and sodium chloride and these cases bring it home to us that we must experiment along these lines. In the second place Dr. Fischer makes the positive statement that the abstraction of sodium chloride from the diet of man or animal results in the occurrence of evidences of nephritis or of tubular epithelium degeneration. That is absolutely negatived by some very important experiments which were reported before the Society by Dr. Joslin some years ago by an ash free diet. I think as clinicians our present endeavor should be to study these problems on nephritis, to study them in connection with the welfare of the patients, with careful quantitative controls of the normal and abnormal substances and not rush into the adoption of any universal theory or any universal panacea of what is probably a group of the most complex anatomical conditions which we know of in clinical medicine or pathology.

DR. A. E. TAYLOR, Philadelphia: I was the original subject on whom salt-free diet experiments were conducted. I obtained in my own person effects which were not obtained in the men following my experiment. The point is true that so far as the men who followed me and myself were concerned we had no symptoms of nephritis. Dr. Moffett, who is in the room, and who took care of me, will testify that there was nothing of that sort, and, although there was a profound disturbance of the body due to salt abstraction, there were no symptoms of nephritis. This is not a fair criticism. It is surprising how animals will resist, at times, to salt abstraction and it is possible that, if the experiment were continued over a longer period, the patient would develop the renal lesions which might be due to salt abstraction.

DR. L. F. BARKER, Baltimore: It is perfectly obvious that this whole renal question is in a state of great vagueness. Until we realize that nephritis and renal disease are not synonymous terms we will not go very far. It seems to me terminology is of great importance, using words which have a meaning and using them in the sense they should be used. The advance of ideas based on physical chemistry in connection with renal disease seems to me very useful. It is perhaps the first time we have had in this Association the presentation of such views in connection with renal diseases and I believe that we will all think a little bit more about the physical chemistry side and not confine our attention to the bacteriological, pathological and clinical side.

DR. JAMES TYSON, Philadelphia: This paper has appeared to me as very attractive; it has impressed me very strongly. In the matter of therapeutic applications, take that of administration of alkalies in the treatment of nephritis. In quite a long experience I have grown to adopt this as the very first measure with a view to attacking the symptoms in what is commonly called acute nephritis, not that I am invariably successful, but this method has proved to be the least unsuccessful method in the treatment of these cases. In all the effort I have made to determine whether abstraction of chloride of sodium reduces œdema I have failed. This perhaps from lack of training in scientific accuracy. I am familiar with Dr. Fischer's book and I treated after his method and I am free to confess I failed. Like so many new measures it seemed as if it would be useful and proved useless. That is, the highly concentrated salt solution.

A STUDY OF PYLOROSPASMS AND OF THE DUODENAL FERMENTS IN INFANTS BY MEANS OF A SIMPLE CATHETER.

DR. ALFRED F. HESS, New York: It is possible to pass a Nelaton catheter, No. 15 F., with great ease, into the duodenum of infants. From the use of this instrument it was found that cardiospasm is a common condition in infancy. It also furnished a means of testing the tonicity of the pylorus and of studying its condition in various cases of vomiting. The catheter can be used in the therapy of pylorospasm both for dilating the pylorus by its

frequent passage and by feeding directly into the duodenum; also for the study of the bacteria in the upper intestine.

SOME CLINICAL ASPECTS OBSERVED IN THE STUDY OF A THOUSAND CASES OF ULCER OF THE STOMACH AND DUODENUM.

Dr. Julius Friedenwald, Baltimore: The thousand cases occurred in 12,598 patients affected with various gastric disturbance (7 per cent.). The largest proportion occurred between the 20th and 50th years, and the greatest number between the 20th and 30th years. There were 676 females and 324 males. As to occupation, 31 were cooks, 18 were workers in metal, 12 in porcelain, 8 were miners, 28 were tailors, 15 shoemakers, 19 blacksmiths; a definite history of trauma was elicited in 23 cases. Anemia was present in at least 65 per cent. of all cases. A history of alcoholism was obtained in 21.4 per cent. of our cases; of syphilis in 5.2 per cent. The gastric secretion presented a normal acidity in 46 per cent.; hyperacidity was observed in 30 per cent.; subacidity as well as anacidity in 23 per cent.; hyperacidity was proportionately more frequent in females, and subacidity in males. As a rule in acute ulcers, and especially those accompanied by recent hemorrhage the acidity was usually high, while in the old chronic forms the acidity was low. Pain was present in 94 per cent. of all cases, and was most marked in those accompanied by a hyperchlorhydria. It appeared in 223 instances within the first hour after taking food, in 188 between one and two hours, and in 491 after two hours. An epigastric tender area was present in 908 cases; a tender point to the right or left of the median line, in 41; a dorsal tender area together with an epigastric tender spot in 523, a dorsal tender area alone in 25, no tender area at all in 26 cases. Vomiting occurred in 676 of our cases. It was proportionately much more frequent in those instances in which pain appeared early, and in those accompanied by a high acidity. Gastric hemorrhage was present in 228 cases while melena was found twice as frequent as hematemesis. Of 539 cases in which the feces were examined for occult blood, 467 gave one or more positive reactions.

DISCUSSION.

Dr. W. T. Howard, Cleveland: I would like to ask Dr. Friedenwald if he has followed any of his cases of gastric ulcer long enough to note whether they developed carcinoma. We tried to follow this out and 4 of 82 cases of gastric ulcer developed signs of carcinomatosis. Another point in that small series is that we found that hyperacidity was not present, but low acidosis.

Dr. Friedenwald: I have followed a great many cases of cancer and in very few cases could we determine that ulcer was the basis of cancer. A very small proportion.

STENOSIS OF THE DUODENUM; A STATISTICAL STUDY WITH THE REPORT OF A NEW CASE.

Dr. J. M. Anders, Philadelphia: Congenital stenosis is not considered in the present discussion. The acquired form is most probably more common than has been supposed by internists in the past, and it invariably develops secondarily upon morbid processes either in the duodenum itself or adjacent organs. An interesting relationship exists between duodenal stenosis and such leading causative affections as duodenal ulcer and carcinoma, as well as disease of the head of the pancreas. The causal conditions are divisible into two groups—benign and malignant. About 20 per cent. of the aggregate number of cases were dependent on malignant diseases of the duodenum, pancreas and other adjacent structures. Of the benign forms, the greater number were occasioned by duodenal ulcer. In 29 instances, constriction of the duodenum was the result of compression by the root of the mesentery. Oehsner reports 15 cases in which spasm of the hypertrophied muscular layer of the duodenum operated as a cause of the condition. Other factors in the production of duodenal stenosis of benign character, were peritoneal adhesions and bands, gall-stones, cysts of the pancreas, kinking, hematoma of the pancreas and ovarian cyst. A point of interest is that about 70 per cent. of the cases were of intra-duodenal origin.

TERTIARY SYPHILIS OF THE LIVER.

Dr. Thomas McCrae, Baltimore: Syphilis of the liver presents a very varied clinical picture with prominent general symptoms in many cases, of which loss in weight is marked. The duration of the symptoms may be prolonged and there may be periods of improvement. Fever is a common occurrence. There are features suggestive of hepatic disease in the majority of the cases. Enlargement or tumor is the most common. This may suggest other conditions, especially malignant disease. General enlargement and the occurrence of nodules or large rounded masses are the most common. A striking feature is the relatively marked enlargement of the left lobe as compared with the right. The diagnosis may be obscured by other diseased conditions or the liver condition may be interpreted wrongly. Ascites is sometimes a difficulty. Knowledge of the features of hepatic syphilis and the therapeutic test are important aids. Treatment can influence the syphilitic process but not its results (cirrhosis, amyloid). The treatment is the usual therapy for syphilis with especial emphasis placed on the administration of iodide of potassium. In many of the cases this alone was given with a perfect result. No difference could be observed when mercury was added but it seems wise to give both drugs. Dramatic results, such as almost immediate disappearance of the fever, reduction in the size of the liver and nodules, and rapid gain in the general state and weight were seen when iodide alone was given. One patient gained 25 pounds in a month. Salvarsan was given to three patients in doses of .5 or .6 gram, and in two of these mercury and iodide were not given in order that the effect could be watched. Improvement followed in both cases but not as rapidly as was the case with iodide alone or mercury and iodide. In the third case all three were given. We must recognize that in some cases while we can influence the syphilitic process in the liver we cannot prevent or materially affect the resulting cirrhosis unless the cases are seen early and recognized.

DISCUSSION.

Dr. M. Howard Fussell, Philadelphia: A man came to the clinic of the University of Pennsylvania with a huge mass apparently in the left lobe of the liver, quite as large as an infant's head. Everybody thought it was certainly carcinoma. By adminstration of inunctions the disappearance of

the tumor was almost miraculous. Before five weeks it had disappeared.

DR. J. M. ANDERS, Philadelphia: It has been well said that it is difficult at all times to recognize syphilis of the liver. Cases of syphiloma on the surface of the organ are, according to certain writers rare. This does not accord with my own personal experience and I was glad to hear Dr. McCrae record a similar observation. With one or two exceptions the tumor has been attached to the left lobe of the liver. This is a point which should ever be borne in mind.

DR. THEODORE C. JANEWAY, New York: This Association knows the interest my father always had in this question of tertiary syphilis and there was one point of diagnosis he laid stress on, namely, the peritoneal friction rub due to the perihepatitis over the gummatous nodule which will be found if searched for.

DR. GEORGE DOCK, St. Louis: Years ago in discussing continued fever of obscure origin I reported a case of syphilis of the liver illustrating that feature. I recently saw another case in which I was able to help the patient by remembering my former experience. The patient was immediately put on large doses of iodide, the nocturnal pains stopped almost at once, the liver went down, but the tumor remained as a stony hard mass in the same region, showing about the same resistance to x-rays. I think you will all agree that in these cases the therapeutic test is advisable.

DR. MCCRAE, Baltimore: We got a definite history of primary infection in 35 out of 53 cases. The time varied from 4 to 25 years. Definite peritoneal friction rub was noted in only one case. It was not looked for in all cases. Osler laid great stress on this point. In regard to the question of therapy, I think if syphilis of the liver existed in which the ordinary adminstration was not efficient it would be well to give intramuscular injections. There was none in this series, as it chanced.

DIABETES INSIPIDUS.

DR. JAMES B. HERRICK, Chicago: I shall report a case of diabetes insipidus of four years' standing in an adult male. Because of certain cerebral symptoms and in order to investigate as to possible lesion of the hypophysis, lumbar puncture was made, less than 5 cc. of clear fluid escaping slowly and under low pressure. A remarkable drop in the amount of urine followed and a rise in specific gravity. Before lumbar puncture the daily amount of urine had been from 7000 to 11,000 cc. and the specific gravity 1001. For four weeks after the puncture the amount averaged 1500 cc. and the specific gravity 1015. The features of special interest in the case were the possible etiology in hypophyseal disease and the sudden change in the urine following lumbar puncture. The latter feature had a bearing on the question of the ability of the kidney in this disease to pass a concentrated urine, a point especially emphasized by Erick Meyer. This clinical experience seemed to show an ability of the kidney of diabetes insipidus to pass such urine, at least under certain conditions.

A FURTHER REPORT UPON THE NATURE AND MEDICAL TREATMENT OF GRAVES' DISEASE.

DR. S. B. BEEBE, New York: In the last few years the increasing interest in the ductless glands has led to more careful autopsies of all cases where autopsies were to be had and the result has been that the other ductless gland cases dying of Graves' Disease show at times marked pathological changes. The adrenal may be hypertrophied, the pituitary may be atrophied or hypertrophied, and in some cases various changes have been noted in the pancreas, the liver and brain tissue itself. These findings have diverted the interest which has been felt in respect to the thyroid gland so that the real escntial relation of the thyroid to a disorder has been very much questioned, and, instead of accepting this symptom-complex as being caused by hyperactivity of this gland, there has arisen a tendency to explain it by a variety of disturbances and say that the thyroid plays only a small part in the disturbance which apparently takes place in many, if not all, of the ductless glands. Whether or not we shall say that the disturbance of the thyroid is primary is yet open to question. Why it is that the thyroid gland suddenly becomes very active and does this tremendous amount of work has never yet been satisfactorily explained. We have carried on a series of experiments in which rabbits and monkeys nave been given varying doses of thyroid both by stomach and by hypodermic injection and the blood picture studied. There are no characteristic changes produced constantly in the blood of these animals either by small or large doses or by giving it by stomach or by giving it intravenously or intraperitoneally. Another fact is that in a considerable proportion of cases what was at first thought to be a benign goitre has later shown in the same patient all of the characteristics of Graves' Disease. Suddenly ushered in by severe nervous shock or an infection, such as acute tonsillitis or typhoid or severe grippe infection, all the symptoms of Graves' Disease rapidly developed and the gland ceased to be a quiescent affair and becomes a really active Graves gland. In summarising the results obtained in the last six years in over 2000 cases treated, I would say that in the case that is not already moribund results may be expected to this degree: 50 per cent. of these patients are made well so that they do anything they wish to do. Many of them still have a somewhat enlarged gland. Their heart and nervous symptoms and everything of that sort clear up. About 30 per cent. more are made very comfortable so that their condition in life is very satisfactory. In about 20 per cent. we fail to get satisfactory results.

DISCUSSION.

DR. GEORGE DOCK, St. Louis: We have all become habituated to the idea that in Graves' Disease we are dealing with a hyperthyroidism. If nothing else had proved it, surgical operations would. We can no longer question that taking away a lot of thyroid tissue from a so-called case of hyperthyroidism will produce a very different picture, but that does not disprove the possibility of there being another process there. Also, rheumatism has been described as very common in all forms of hyperthyroidism. Much attention is being called to fright as a cause of hyperthyroidism but I do not know one case where that has been the active factor of the onset of the disease.

DR. LOUIS B. WILSON, Rochester: Dr. Beebe calls attention to the fact that he has not found confirmation of Kocher's statement that there is a hyperleukocytosis in these cases of hyperthyroidism. Since Kocher's first statement some years ago we have a number of differential counts on about 800

cases of exophthalmic goitre and simple goitre as well. We have analyzed all the 27 deaths which have occurred in exophthalmic goitre. Not one gave a high lymphocyte count. Of the 25 in which a high lymphocyte count was given, not one has been a severe case. It is true that in exophthalmic goitre there are a great many cases with a relatively high lymphocytosis up to 40 per cent., but it is equally true that in simple goitre we have equally high lymphocytosis. So far as results are concerned, all of our exophthalmic cases treated to January 1, 1910 were tabulated a year ago and 71 per cent. of these people who were formerly a burden to themselves and friends have been able within three months of the operation to return as working members of the community. This is practically the same as the results from the use of the serum.

DR. S. B. BEEBE, New York: I do not know that any one would say that the Graves' Disease was caused by fright, but I am perfectly satisfied in my own mind that fright is a factor of considerable importance in the immediate development of acute symptoms in a person who has been previously apparently all right. The fact that they do not all respond to fright by developing hyperthyroidism does not mean that fright is not a factor of very considerable importance. I believe I can safely say that in 20 per cent. of the cases that showed immediate acute development fright or nervous disturbance due to worry or sickness in the family is a factor in the development of the disease.

ANTITYPHOID INOCULATION; THREE YEARS' EXPERIENCE WITH ITS USE IN TRAINING SCHOOLS FOR NURSES IN MASSACHUSETTS.

DR. LESLEY H. SPOONER, Boston: This work, stimulated by the results of anti-typhoid inoculation in the British Army, aimed to establish an immunity among nurses and physicians in hospitals, who under the best conditions suffer a high morbidity from typhoid. Its success depended upon its safety and the ease with which it could be accomplished. These ends were secured by the use of a low virulence vaccine administered at frequent intervals in small doses. The results, from the point of view of (1) blood changes and (2) incidence of the disease, seem to justify the procedure. The use of the same prophylaxis during epidemics is safe, sane and most desirable.

DISCUSSION.

DR. WILLIAM H. PARK, New York: We had a very interesting case in our laboratory. A girl (one of the laboratory attendants) swallowed by mistake a culture of typhoid. I immediately immunised her but she came down at the usual time and went through the usual course. In another case by accident three persons got 4,000,000 bacilli for their first dose. One had no reaction, the second had a slight reaction and the last had a severe reaction for five days.

MAJOR FREDERICK F. RUSSELL, U. S. A., Washington, D. C.: I had a case similar to that which Dr. Park mentions, in which I immunised a man for typhoid. He did not develop the disease. I have been especially interested in the statement of Dr. Spooner as to the use of anti-typhoid vaccine in epidemics at all times of the year. That we cannot immunize safely in the presence of an epidemic has been very important to us. It has been the greatest stumbling block to this form of immunization, to find out that there was a negative phase which increased the susceptibility to infection. Wright believed that and preached it widely and it has done more than anything else to hold the movement back. Last year in Connecticut there was an outbreak in which the water supply of a small town was polluted. One of our men happened to be there and induced friends of his to use vaccination immediately and half the nurses; there were 80 nurses who were vaccinated. Not one of the vaccinated developed the disease. Three of the 35 unvaccinated nurses did develop the disease in the next two months. I think that is another instance in which it shows that it is perfectly safe to vaccinate in the presence of an epidemic. We know pretty well now from the experience of various people that vaccinating against typhoid does not carry with it any danger. We have vaccinated now 150,000 and the only accident has been one case of respiratory paralysis. It was not severe, but painful in the way of neuritis. We know that it does protect. Our experience on the Mexican border last year proves that it protects from the disease. We know that the immunity does not begin to fall off until between two and three years and in that way it compares favorably with the immunity conferred by vaccinia in Japan. We don't know how long it will last, but I don't think it will be many years until we do know. The rules for its use are about the same as in vaccination — the injunction should be borne in mind to vaccinate only the healthy. We have had a similar experience in lighting up a few cases of latent tuberculosis. The question of its use in certain classes of people is of some interest. I have been immunizing a good many children and young people, school children and people who were going from a healthy city to the country. We all know in New York and Chicago it is much more healthful than country regions; that in the country the liability to infection is five or six times as great. The children have easy reactions and it will protect them against a real danger. For the rest of us there is no chance of infection or very small chance of infection, so long as we remain at home in cities where the typhoid rate is low. Of course none of us know that. We are always going into regions where typhoid prevails. People travelling through the South are constantly exposed to greater risk than if they remained at home.

DR. M. H. FUSSEL, Philadelphia: During the past winter the supply pipe which ran to the 21 and 22 wards of Philadelphia broke. They immediately pumped raw Schuylkill water into the main which spread quite an extensive epidemic in these two wards. It so happened that I was in St. Timothy's Hospital where we received 36. I immediately vaccinated all my nurses, which happened to be 18. None of the nurses developed typhoid and none of them a very severe reaction.

DR. M. W. RICHARDSON, Boston: This work of Dr. Spooner's is especially interesting to me because it represents a continuation of the work I was doing at the Massachusetts General Hospital. At that time we used to notice that the nurses used to be sick and we regretted it. At my suggestion Dr. Spooner looked up the figures for ten years and found the number of nurses affected with typhoid. At my suggestion the nurses were called together and the question of immunization was put up to them. A large number responded. Then as Secre-

tary of the State Board of Health I sent a circular letter to all the training schools of the state and the result has been as detailed by Dr. Spooner. I think that vaccines, if intelligently used, can prevent a large percentage of the relapses. The Legislature in Massachusetts has recently given power to the State Board of Health to furnish these vaccines free to physicians and it is probable that this vaccine will be available within the next few months.

AN EXPERIMENTAL RESEARCH ON THE TYPHOID CARRIER.

DR. JOHN ANDERSON JOHNSTON, Philadelphia: The problem was whether an analogous condition to the typhoid carrier state in man could be produced in the rabbit; and, in the event of such a condition being established, the effect produced by vaccine treatment. The results of our experiments show that the condition analogous to the typhoid carrier state in man can be produced in the rabbit. B. typhosus can be recovered from the blood up to the end of the first month following inoculation for the blood and up to 110 days for the feces. B. typhosus is present in the bile approximately 60 days after inoculation, and would then seem to become attached to the mucosa of the gall bladder wall. An inoculated animal becoming a carrier may have a reappearance of the typhoid organism in the stools due to a catarrhal condition affecting the gall bladder. From the results obtained in this experiment, vaccination would certainly seem to be indicated as a means of treatment in the human carrier, and also as a prophylactic agent in the prevention of such carriers.

HOSPITALS AND TYPHOID CARRIERS.

DR. J. W. BRANNAN, New York: Since September, 1911, we have examined during convalescence from typhoid fever 119 cases and have found typhoid bacilli in the feces or urine or both in 12.6 per cent. of the cases. All but two of these were free from bacilli on leaving the hospital. We have found no great difficulty in holding patients until free from bacilli as shown by two successive negative examinations. All patients recovering from typhoid should be instructed in regard to cleanliness.

DISCUSSION.

DR. WILLIAM H. WALCH, Baltimore: My impression is that it is on the whole exceptional rather than the rule that the typhoid bacilli injected into the veins of rabbits establish themselves permanently in the gallbladder, but, once established there they can certainly survive almost indefinitely. My impression is that the idea that any large percentage of carriers are carriers by virtue of the presence of the typhoid bacilli in the gallbladder rests on a rather weak basis. The gallbladder has been removed in some of these carriers and in some instances it resulted in the removal of the typhoid bacilli altogether in the stools. In other cases it has been entirely unsuccessful. So I do not suppose we are justified in assuming that they are typhoid carriers solely because of their biliary infection. It is curious to me, on the whole, that vaccine with the quick culture should influence the typhoid bacilli in the bile.

MAJOR RUSSELL, U. S. A., Washington, D. C.: The vaccination of carriers we know is not always successful. I have had one carrier under observation for two and a half years and he has been vaccinated with stock and autogenous vaccines for fully two years' time without any effect upon his bacilli. He has no biliary symptoms. He has no symptoms of any kind. Says he never had typhoid, for one thing. There is another thing about instruction in personal cleanliness. We have had a great deal of experience in instructing soldiers in cleanliness both in field and barracks. It is very uphill work. We find they are really too old to be taught personal cleanliness. That has led me to see what was done in public schools, whether they could wash their hands after going to the toilet if they wished. I found in most schools they could not wash their hands. After they grow up they are too old to teach. Teach cleanliness in the public schools.

WEIGHT-CURVES IN TYPHOID FEVER.

DR. WARREN COLEMAN, New York: Loss of weight has usually been considered as an essential symptom of typhoid fever. Previous investigations of the subject fail for the most part to state the amount of food taken by the patients, thus making comparisons of the results difficult. There is general agreement, however, upon the following conclusions: The majority of patients lose weight. The extent of the loss depends upon the severity of the infection and the duration of the disease. The maximum loss is reached in the third week, more rarely in the second. Complications increase the loss of weight. The loss usually ceases with the return of the temperature to normal, but may extend to the third week of convalescence. The majority of patients gain in weight during convalescence, sometimes rapidly. The loss of weight is usually ascribed to (1) the fever, (2) the so-called toxic destruction of protein, and (3) to partial starvation. The loss due to each of these causes may be reduced to a minimum, or prevented, by a liberal diet containing an abundant supply of carbohydrates.

THE ADVANTAGES AND DISADVANTAGES OF THE INTRAVENOUS, INTRAMUSCULAR AND SUBCUTANEOUS INJECTIONS OF ANTITOXIN.

DR. W. H. PARK, New York: The rapidity of absorption varies as follows. At the times stated below a given dose of antitoxin will give an amount of antitoxin in the blood as follows:

	6 hrs.	12 hrs.	24 hrs.	48 hrs.
Intravenous....	120	100	100	80
Intramuscular..	6	24	40	45
Subcutaneous..	3	12	20	25

The effectiveness of antitoxin quantitatively considered is in proportion to the amount in the blood current. During the first 24 hours one part given intravenously is worth eight parts given subcutaneously and four intramuscularly. In practice intramuscular injections often act as subcutaneous ones, probably because the serum escaped from the muscle. No accidents have followed over 100 intravenous injections. The difficulty of giving is the only objection. In severe cases of diphtheria and in all cases of tetanus the antitoxin should be given intravenously.

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A GERMAN CRITIC OF AMERICAN MEDICAL METHODS.

A considerable stir, which, like most such occurrences, appears disproportionate to its cause, seems to have been created in New York last week as a result of some very impartial criticisms of American hospitals and their medical methods made recently by Dr. Heinrich Neumann, of Vienna, a delegate to the Ninth International Otological Congress held lately in Boston.

Before sailing from New York Dr. Neumann gave an interview in which he praised the construction and equipment of American hospitals, but made some criticisms as to their efficiency from a scientific point of view. He was particularly emphatic as to the lack of systematic post-mortem examinations, such as is the practice in Austria, where the law prescribes that everyone, rich or poor, who receives treatment in a general hospital must agree to an autopsy. Another special criticism which he made was the change of treatment under different physicians. "Take," he said, "the New York Eye and Ear Infirmary, a splendid modern institution, and yet four or five physicians divide the patients among themselves. One will have a case today, another tomorrow, and so on, until the original treatment is lost sight of. One doctor reverses the treatment of another, which is bad for the patient and worse for the physician, for he does not have a proper opportunity to study the patient, and cannot advance in the study of his specialty." Having remarked that here young physicians were too often allowed to pose as specialists without adequate training, Dr. Neumann went on to say: "It would not be necessary for medical students and medical men to go to Europe for special study if the proper methods were adopted here. You have men of as high intelligence and skill as are to be found anywhere, and you have the means to meet all requirements; but, under the conditions which prevail in general hospital practice here hundreds of Americans are forced to seek special knowledge in foreign countries."

These comments seem tolerant and just enough, and Dr. Theodore C. Janeway, of Columbia University, corroborated them in a letter to the New York *Times*, which was reprinted in part in last week's issue of the JOURNAL. To others, however, the views of Dr. Neumann and Dr. Janeway did not so fully commend themselves, and several letters consequently were published in reply.

First, Dr. Allan McLane Hamilton, in a letter published on August 28, took issue with Dr. Janeway, as follows:

"Dr. Janeway," he says, "with the pessimism which is, and ever has been, regrettably too common, lauds the German system of instruction, which he considers to be altogether superior to our own, for the reason that the teachers here are practising physicians who have hospital connections, while abroad such is not the case. It is the opinion of the writer, and I am sure of others, that Dr. Janeway minimizes not only the standing of medical teaching (including diagnosis) in the United States and Canada, but the advantages in clinical teaching by such institutions as Johns Hopkins, Harvard, McGill and others, and by the several great New York schools with hospital connections. There can be no doubt that the standard is now higher than it has ever been, and that, whatever system prevails, the young men are an intelligent, studious, progressive and well-equipped lot, full of ambition, and free from many of the stilted and impractical mental habits and the intolerance which the American sometimes acquires who spends a short time abroad in a German school. The non-practising teacher is not always the most competent to make the most accurate diagnosis, though he undoubtedly excels in research work; in fact, I am familiar with lamentable errors made by some of the apostles of very advanced medicine who have even had the advantage of making unlimited autopsies. The fashion of indulging in adulation of German medicine at the expense of all others is no new thing, and with some amounts to a veritable affectation. To those of us who have for very many years watched the evolution of medical teaching in English-speaking countries there can be no doubt that even as the result of the hospital work which is condemned by Neumann, and when 'practicing physicians' teach in the hospitals of England, as well as the United

States, great advances have been made, among them the remarkable discovery of Sir Almroth E. Wright. Young men do not go to Germany as much as they did, for they find here the advantages formerly obtained in Teutonic schools and hospitals, even though their instructors may be drawn from the 'superabundance of physicians of equal rank' to which our German critic objects. Dr. Janeway's regret that autopsies are not more often obtained is shared by most of us, but the conditions are very different from those in European countries, where there is more paternalism of an effective kind. It is, therefore, hardly conceivable how laws can be made which will make post-mortem examinations always possible whenever a matter of dispute arises about the correctness of a diagnosis. In a land where so strong a sense of personal liberty is felt—and often license exists—and when so much ignorance and prejudice prevail among ordinary hospital patients, it is inconceivable how any forcible or radical measures could ever succeed."

Following these remarks by Dr. Hamilton there appeared in the *Times* the following letter from Dr. Beverley Robinson:—

"To Dr. Theodore C. Janeway's very able appeal for more advanced methods of teaching in our hospitals, I have a few words to add. I agree thoroughly that we should have one or more model institutions in which the best medical teaching, based upon the most perfect system, is employed. Further, I agree that we should obtain many more autopsies than we now have.

"On the other hand, we should recognize that the highest medical acumen in diagnosis does not necessarily make the best practitioner either in medicine or surgery. The most learned professor may not have that intuitive sense, that humane appreciation which brings man into closest brotherhood, and it is this *sine qua non*, as I believe, which is acquired usually by years of tried service for one's fellows outside of hospitals, which seeks for and recognizes in patients a great deal that neither physical methods nor laboratory research can reveal.

"The unknown quantity, the functional asset, so to speak, of men and women, which is so variable and ever changing, and which frequently has little to do apparently with changes of organs, must inevitably concern us most deeply. It is the side which is nowadays too often and too much lost sight of.

We can never tell in advance accurately how this should be met and cared for. Every new case is a law to itself; every patient affords a lesson which he alone may teach."

As a matter of fact, the questions raised in this discussion seem to be, like that in the de Coverley papers, of the kind on both sides of which much may be said. It is probably true that good practitioners of medicine, like other artists, are born rather than made; but it is equally true that they can be much marred or improved in the training. The methods by which they should be trained are, therefore, likely to remain subjects of discussion and experiment. As there is not, however, the slightest likelihood of the compulsory or voluntary establishment of universal necropsies in this country, it seems that for better or worse we must contrive some way of getting along without the fulness of this important adjunct in medical training and progress.

As for Dr. Neumann's criticisms, they seem to have been altogether worth while, since, whether justified or not, they have afforded us the valuable opportunity, for which we should feel gratitude rather than resentment, of seeing ourselves through eyes which, perhaps unlike our own, are not blinded by familiarity with American defects.

THE ANCIENT HISTORY OF MEDICINE.

THE issue of the *British Medical Journal* for August 24 contains an extended review of the first volume of a new "History of Medicine" by Dr. Max Neuburger, professor of medical history in the Imperial University of Vienna. This volume, translated into English by Dr. Ernest Playfair, and with a preface by Sir William Osler, deals with the development of medicine from its beginnings till the time of the Renaissance. In the first section, which is concerned with primitive medicine, the author undertakes to trace the inception of medicine from the instincts of animals.

"Heated animals refresh themselves in cold water, warm their stiffened limbs in the sun and destroy irritating parasites. Cats and dogs lick their wounds; dogs eat grass to excite vomiting. A dog with a broken bone runs on three legs, holding the broken one so that it may set without appreciable shortening. Monkeys seek to check the flow of blood by application of the paw, and are adept in the extraction of foreign bodies such as thorns. The medicine of animals, moreover is not confined to self-help, but extends at times to the help of others, particularly in dealing with the young."

From the early, instinctive actions of animals are thought to have arisen some of the simpler procedures of surgery.

"From the primitive actions of scratching, rubbing, or pressure, moistening of wounds with saliva by sucking them, and other purposeful reflex and instinctive actions, highly differentiated methods of treatment have been evolved—

as, for instance, massage. Among the earliest practices in the healing art are naturally the manipulations used to aid in childbirth and the attention given to young children. Surgery dates from the use of instruments in extracting foreign bodies, the opening of abscesses, scarification, and blood-letting. Experience showed that some wounds were mortal, while recovery from others might be expected to take place naturally."

Dr. Neuburger refers particularly to the discovery of trephined skulls from neolithic times in nearly every country of the world.

"The remaining bones of Neolithic man show in many cases distinct traces of disease and injury. Thus fractures of various bones (some healed almost without deformity), injuries (from flint arrowheads), ankylosis, inflammatory processes, caries, necrosis and rickets have been described. In graves belonging to the Bronze Age the remains show the marks of injury and arthritis deformans. Diseases of which the cause was not visible were attributed to magic or the operation of evil spirits, and from this general concept there arose the notion that there were specific spirits which caused different diseases. Sometimes it was thought that the disease was caused by possession, that is, by the occupation of the sick man's body by spirits of dead men or of demoniacal animals."

Following these general and prehistoric considerations, the author takes up the successive discussion of recorded historic data in the history of medicine:

"Mesopotamia seems to have been the nursery if not actually the cradle, of all culture. From the scanty fragments of Babylonia-Assyrian medicine which have come down to us it may be gathered that it had a theurgico-empirical character. Prayers, spells and amulets were largely used, but therapeutic measures were also employed. Polypharmacy was in great vogue, and something akin to patent medicines with fancy names, such as medicine of the Sun God, dog's tongue, and skin of the yellow snake were used. Among external applications may be mentioned inunction, friction with oils, enemas, baths, affusion with cold water, and cupping. Bloodletting was also employed. It is probable that astrology was used in prognosis, and that different anatomical regions were placed under the dominion of the signs of the zodiac. Vast records of omens were collected by the priests. In these animals played a large part, such as the sudden appearance of one in a house, meetings with dogs or calves, the flight of birds, and so forth. Remains of these superstitious beliefs may still be found at the present day. The collection of omens, which constituted a considerable portion of the library of Sardanapalus, grandson of Sennacherib, King of Assyria (668-626 B. C.), led to a collection of observations on disease. Thus in time there grew up a kind of official clinical record which, used at first for the purpose of prophecy, was employed later as a means of prognosis. The Mesopotamian doctors were a part of the priesthood, but it is probable that there were also independent exorcisers, cuppers, and layers on of plasters, who were subordinate to the physician. In exactly the same way surgeons and barbers were subordinate to the monks who practised medicine in the Middle Ages. Hence it is not, perhaps, rash to conjecture that in this way arose the subordination of the surgeon to the physician, which continued into modern times.

"Egypt, which in intiquity was thought to be the birthplace of all wisdom, had a great reputation for medicine. It was considered as the healthiest of all countries, and, like a modern health resort, it swarmed with doctors. Medical practice was highly specialized. Egyptian doctors anticipated one of the most 'modern' fads—that disease is to be cured chiefly by fasting. Medicine was taught in the schools connected with the temples, among the most celebrated being those of Memphis and Thebes. The pupils received practical as well as theoretical instruction, opportunity being afforded by the number of patients who sought care in the temples, while the physician priests also visited the sick in their own houses. The system had the advantage that regular education was assured, and it may perhaps be inferred that quackery was resented. On the other hand, science being confined to the priestly order, was held fast in the trammels of theology. It is significant of the decline of Egyptian medicine that, whereas in the oldest documents pharmaceutical remedies prevail, though forms of prayer are given, in those of later date magical formulæ and incantations predominate. Magical sentences accompanied the preparation of drugs, or were spoken by the patient while taking them."

As a result of the extensive records which they have left, the conditions of medical practice among the ancient Egyptians are fairly well known.

"The Egyptians had a large and varied pharmacopœia derived from the vegetable, animal, and mineral kingdoms. The forms in which medicines were given or applied were draughts, electuaries, masticatories and gargles, snuffs, inhalations, salves, plasters, poultices, injections, suppositories, enemas, and fumigations. Of the surgery of the Egyptians little is known, but there is proof that they operated on tumours, and they had a high reputation for ophthalmic surgery. In mummies well united fractures have been found, as well as fractures showing overlapping of the fragments to a considerable extent. Even in the present day the x-ray shows that this kind of thing occurs to an extent which a few years ago was unsuspected. The lancet and cautery were in use for operations. Hygiene and prophylaxis ranked high among the Egyptians, who paid great attention to the care of their children."

The author writes also of medical practice in other ancient civilizations:

"Three epochs are to be distinguished in Indian medicine: 1. The Vedic, extending from the first migration of the Hindus into the Punjab to about 800 B. C. 2. The Brahministic, in which the priestly caste was dominant, representing the Indian Middle Ages. 3. The Arabic, commencing about 1000 A. D. From the Vedas it is seen that the most ancient Indian medicine has its foundation in theurgy. There are traces of empirical knowledge of disease, the action of herbs, the use of cold water, and some primitive surgery. In later Vedic times the physicians formed an independent class, and to a certain extent were in opposition to the Brahmins. The Vedas were familiar with the extraction of arrows, the dressing of wounds, artificial limbs, and castration, and they recognized a number of diseases, among them scrofula, vertigo, dropsy, epilepsy, gout, heart disease, jaundice, and hemiplegia. They used means to produce abortion, and to favour conception, and made a large use of aphrodisiacs, a characteristic of Indian medicine even at the present day.

"Neuburger epitomizes Chinese medicine in the statement that its central doctrine is that the human body with its powers is, down to the minutest details, a reflection of the phenomena of Nature in the universe. Dissection being forbidden, the Chinese notion as to the structure of the human frame is mostly fanciful. The Emperor Kang-Hi (1662-1723) caused a translation of the anatomy of Pierre Dionis to be made by the Jesuit Perennin, but this attempt to introduce Western anatomy was defeated by the native doctors. The most minute attention is given to the pulse, which is considered a sufficient indication for the diagnosis of the nature and site of the disease. Chinese medicine is rich in the department of therapeutics. The belief that in Nature there exists a remedy for every ill has led to the trial of every imaginable substance, of vegetable and animal, and, to a less extent, mineral origin.

"Among the Aztecs the art of medicine was mainly empirical, but it is noteworthy that the ancient Mexicans had hospitals, particularly for wounded soldiers, and institutions for the incurable. They also had botanic gardens, with large numbers of medicinal plants. The Spanish Conquistadores were struck by the surgical skill of the Mexicans. In spite of many analogies with the East, no connexion between Oriental and Mexican medicine has been traced. Among the other American civilizations medicine was less developed. Among the Peruvians in particular it was mystic, and exercised by priest physicians."

For the information that it affords, as well as for the interest of its bearing on modern professional conditions, this book deserves careful reading by all physicians.

THE NATURE, ORIGIN, AND MAINTENANCE OF LIFE.

THE annual meeting of the British Association for the Advancement of Science was held last week at Dundee, Scotland. About 2000 members and delegates were in attendance. Among the American representatives present were Dr. Franklin P. Mall, of Baltimore; Dr. S. J. Meltzer, of New York; Dr. J. W. Spencer, of Washington. D. C.; and Dr. G. W. Field, of Boston.

Not a little discussion was apparently caused by the presidential address on Wednesday evening, Sept. 4, of Dr. E. A. Schäfer, of the University of Edinburgh, on "The Nature, Origin and Maintenance of Life." This address is available to readers of the JOURNAL in the issue of *Science* for Sept. 6, where it is published in full. In it Dr. Schäfer explores at length the fundamental problems suggested by the title, and explores them not as a speculator or metaphysician, but by the scientific method. Essentially he believes that life and its varied processes and functions are determined by chemical reactions, and arrives at the same mechanistic conception of life that Dr. Jacques Loeb has recently made familiar as a result of his investigations in parthenogenesis and biochemistry.

Though there is nothing revolutionary or incendiary in Dr. Schäfer's address, its utterance seems to have aroused, as one would expect, in the still British, howbeit scientific audience, a storm of discussion and adverse criticism. There were not lacking, however, those who supported Dr. Schäfer's views. The greatest protest seems to have been aroused by his temperate statement of the possibility that life may some day be artificially and synthetically produced in the laboratory. Whether or no this possibility is ever realized is actually of little importance apart from its interest as a curiosity of science. Even if some of the simpler forms of cellular life could be imitated chemically, the result could hardly affect human existence without waiting for the period of time previously required for the evolution of man. As a matter of fact this quest bids fair to have much the same fate as that for the philosopher's stone. Whatever its outcome, it seems likely that for some time at least the higher forms of life will continue to be reproduced on earth by natural and traditional methods.

MEDICAL NOTES.

Cholera in Sardinia.—Report from Washton, D. C., on Sept. 4, states that a fresh outbreak of Asiatic cholera has occurred in the town of Cagliari, in southern Sardinia, and that quaratine has been declared at all United States ports against vessels coming from that island.

The Afflictions of Early.—The latest episode in the history of John Ruskin Early, the leper, now under quarantine at Diamond Head on Puget Sound, near Tacoma, Wash., is that his wife has recently filed suit against him for divorce on the ground of extreme cruelty.

Death of a Heavy Woman.—Mrs. Robert Dowden, who died on Sept. 4 at Baltimore, Md., is said to have weighed 445 pounds.

Continued Decrease of Medical Schools in America.—In an editorial in last week's issue of the Journal we commented on the gradual decrease in the number of medical schools in this country. During the current year their number has undergone a still further reduction, from 122 in 1911 to 116 which will open to receive students this fall.

Constitutionality of Sterilizing Criminals.—On Sept. 3 the Supreme Court, at Olympia, Wash., sustained the sentence of sterilization imposed on a criminal under life imprisonment at Seattle, Wash. This decision is of great importance as a legal precedent, since it upholds the constitutionality of the law providing for such sterilization of habitual criminals and defectives.

London Death-rates in July.—Statistics recently published show that the total death-rate of London for July, 1912, was 11.8 per thousand inhabitants living. Among the several districts and boroughs, the highest rate was 16.7 in Bermondsey, a populous region on the right bank of the Thames, and the lowest was 7.7 in Hampstead, an open suburb on the north.

Notification of Poliomyelitis and Meningitis in England.—On Dec. 12, 1911, the British local Government Board suggested to local authorities the desirability of adding acute poliomyelitis and cerebrospinal meningitis to the list of notifiable infectious diseases. In response to this suggestion many municipalities did require notification of these diseases, but the requirement was not universal. On Sept. 1, 1912, the Board issued an order making such notification compulsory and general throughout England and Wales. This step marks a praiseworthy advance in the systematic study and prophylaxis of two of the serious affections of childhood.

International Congress of Midwifery and Gynecology.—The sixth International Congress of Midwifery and Gynecology has been in session during the current week in Berlin, under the presidency of Dr. E. Bumm, of the Royal Charity Hospital. On Monday evening, Sept. 9, there was a reception by the German Obstetrical Society. At the meeting on Tuesday, Sept. 10, the topic of discussion was "The Treatment of Wounds of the Perineum," and on Wednesday, Sept. 11, it was "The Surgical Treatment of Uterine Bleeding During Pregnancy, Labor, and Puerperium." On Thursday, Sept. 12, there are to be individual communications, and on Friday, Sept. 13, demonstrations by different members of the Congress at the Charity Hospital.

Medical Tour of German Physicians.—On Saturday of last week, Sept. 7, there sailed from Hamburg, Germany, a party of about 250 German physicians who are to make a medical tour of the United States and Canada. It is expected that they will be in Boston during the month of October.

Boston and New England.

Decrease in Boston Mortality.—Data published on Sept. 6 by Dr. William H. Davis, vital statistician of the Boston Board of Health, show that during the first eight months of the current year there were in Boston 452 fewer deaths than in the corresponding period of 1911.

Successful Candidates for Registration in Medicine.—It is announced that of 118 candidates at the recent examination before the Massachusetts State Board of Registration in Medicine, 93 were successful and have been awarded certificates.

Recent Medical Bequests.—The will of Daniel A. Kimball, which was filed on Sept. 5 in the probate court, at Pittsfield, Mass., contains a be-

quest of $1000 to St. Joseph Hospital, in Providence, R. I.

The will of the late Cyprian S. Bramard, Jr., of Haddom, Ct., contains an unconditional bequest of $25,000 to the Yale Medical School.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Aug. 31, 1912, is 192, against 203 the corresponding week last year, showing a decrease of 11 deaths, and making the death rate for the week 13.94. Of this number 96 were males and 96 were females; 184 were white and 8 colored; 116 were born in the United States, 67 in foreign countries, and 9 unknown; 35 were of American parentage, 121 of foreign parentage, and 36 unknown. The number of cases and deaths from infectious diseases reported this week were as follows:—Diphtheria, 15 cases and 0 deaths; scarlatina, 6 cases and 0 deaths; typhoid fever, 15 cases and 5 deaths; measles, 23 cases and 1 death; tuberculosis, 55 cases and 13 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 13, whooping cough 2, heart disease 23, bronchitis 0. There were 14 deaths from violent causes. The number of children who died under one year was 52; the number under five years 64. The number of persons who died over sixty years of age was 53. The deaths in hospitals and public institutions were 85.

Deducting the deaths of non-residents, the total is 168. The corrected death-rate is then 12.18.

Cases of infectious diseases reported to the Boston Board of Health for the week ending Sept. 3, 1912, are: Diphtheria 20, scarlatina 3, typhoid fever 17, measles 15, smallpox 0, tuberculosis 44.

The death rate of the reported deaths for the week was 14.41.

NEW YORK.

DECREASE OF INFANT MORTALITY.—Up to the close of the week ending August 24, notwithstanding the increase in the population of the city, there were 629 fewer deaths of infants under one year old in New York than in the corresponding period of 1911.

PETITION FOR DEATH.—Mrs. Sarah Harris, a married woman 33 years old who has been paralyzed for the last three years, recently dictated from her bed at the Audubon Sanitarium an appeal for an act of Legislature which would make it possible for physicians to end her sufferings by a merciful death. Her paralysis, which is of spinal origin, is absolute below the head, while her mentality is intact and she is in constant pain when not under the influence of anodynes. Her case has been pronounced entirely incurable, and it is stated that the chances are that she may live for many years yet.

TWO HOSPITAL BEQUESTS.—By the will of the late William P. Young of Newark, N. J., bequests of $500 each are left to St. Barnabas's and St. Michael's Hospital and other Newark institutions.

REPORT OF BUFFALO BOARD OF HEALTH.—The recently published annual report of the Department of Health of the City of Buffalo records the activities of that body for the calendar year 1911. During this period the death-rate was 14.45 per thousand, or 13.18 per thousand exclusive of non-residents. During the same period the birth rate was 24.22 per thousand. The report of the health commissioner urges the necessity of a new hospital for chronic tuberculosis. The appended reports of the several bureaus and divisions present in detail the work accomplished in the past year.

LECTURES AT POST-GRADUATE MEDICAL SCHOOL.—Professor Dr. H. Strauss of Berlin will lecture at the New York Post-Graduate Medical School and Hospital, Second Avenue and Twentieth Street, on October 12, 14 and 15, on The Diseases of the Stomach and Kidney. Professor Dr. Carl von Noorden, Physician in Chief to the City Hospital, Frankfort, Germany, will also deliver a series of lectures on the Pathology and Treatment of Diabetes, Radium Therapy and Arteriosclerosis at the same place, on Oct. 28 to Oct. 31 inclusive.

Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
AUGUST 31, 1912.

1. *GREENE, C. L. *Prognosis in Chronic Heart Disease as Adversely Affected by Certain Medical Traditions.*
2. *LORENZ, W. F., AND RAVENAL, M. P. *The Treatment of Diphtheria-Carriers by Overriding with Staphylococcus Aureus.*
3. *COLE, R., M.D. *Pneumococcus Infection and Immunity.*
4. *BURNAM, C. F. *Corpus Luteum Extract, With Suggestions as to Its Use in Gynecologic Practice.*

5. *Watkins, T. J. *Puerperal Infection. A Study of Some of the Most Interesting and Practical Features of the Disease.*
6. McPherson, R. *The Radical Treatment of Abortion with Observations on and an Analysis of 3500 Cases.*
7. Taussig, F. J. *Gynecologic Disease in the Insane and Its Relationship to the Various Forms of Psychoses.*
8. Heinemann, P. G. *The Epidemic of Sore Throat in Chicago. A Preliminary Report.*
9. Barker, L. F., and Estes, W. L. *Family Hematoporphyrinuria and Its Association with Chronic Gastroduodenal Dilatation, Peculiar Fits and Acute Polyneuritis. A Preliminary Report.*
10. Schrup, J. H. *Auto and Bicycle Inner Tubes Used as Ice-bags and Hot Water Bottles.*

1. Greene believes that an early diagnosis in chronic heart disease is absolutely essential to the patient's welfare. A large class of patients commonly called neurasthenics while usually free from serious organic heart disease are peculiarly lacking in heart muscle tonus and possess extremely dilatable symptom producing hearts. Active medication should be started at the first sign of failing compensation and not after compensation has actually failed.

2. Lorenz and Ravenal state that pure cultures of staphylococcus pyogenes aureus sprayed into the throat and nasal cavity in diphtheria-carriers will cause a disappearance of diphtheria bacilli.

3. Cole brings experimental and clinical evidence to show that in all probability the pneumococcus is not the first cause of pneumonia but that pneumonia probably arises because in a small portion of the lung a nonspecific exudation occurs and later the pneumococcus grows in this and produces irritating substances. From this small focus or from a few or many small foci extension occurs until the entire lobe is involved. His work also favors the theory that the toxemia in pneumonia is the result of a specific endotoxin of the pneumococcus rather than the result of digestive action on the bacteria. The author is unable so far to explain the phenomenon of crisis.

4. Burnam gives the following enthusiastic report of the effects of corpus luteum extracts. "When given by mouth corpus luteum tissue of the sow even in large doses has little or no toxic effect on woman. It affords a valuable means of controlling the nervous symptoms of artificial or natural menopause, giving much relief and is also efficient in feeding patients with insufficient ovarian secretion during the menstrual life. It is an excellent remedy for young women suffering from functional amenorrhea." The author favors Fraenkel's view that menstruation is caused by the internal secretion of the corpus luteum. Injected subcutaneously it may be very toxic.

5. Watkins believes that puerperal infection is essentially a systemic infection. Treatment should be chiefly general and should consist mainly in strengthening the body resistance and hastening the development of immunizing bodies. Retained products of conception should be left to escape spontaneously; in individual instances gauze packing should be used to check bleeding, to hasten separation of the tissue and to stimulate uterine contractions. Pelvic inflammatory exudate will usually disappear entirely by absorption but secondary colon infections require operation. The vigorous operative treatment that is often used is more dangerous than the disease.

[E. H. R.]

The Journal of Experimental Medicine.

August 1, 1912.

1. Stewart, H. A., and Harvey, S. C. *The Vasodilator and Vasoconstrictor Properties of Blood Serum and Plasma.*
2. *Wollstein, M., and Meltzer, S. J. *Experimental Bronchopneumonia by Intrabronchial Insufflation.*
3. Dixon, R. L. *Some Observations of the Thoracic Duct Lymph after Injection of Oil of Turpentine Into the Peritoneal Cavity of the Dog.*
4. Levin, I. *Changes in the Tissue Surrounding a Growing Tumor and the Significance of the "Precancerous State."*
5. Levin, I. *Tumor Inoculation Into Organs and the Analogy between Human Cancer and the Tumors of White Mice and White Rats.*
6. Carrel, A. *Pure Cultures of Cells.*
7. Ingebrigtsen, R. *The Influence of Isoagglutinins on the Final Results of Homoplastic Transplantations of Arteries.*
8. King, J. H., Moyle, R. D., and Haupt, W. C. *Studies in Glycosuria.* Second paper: *Glycosuria following Anesthesia Produced by the Intravenous Injection of Ether.*
9. *Noguchi, H. *Treponema Mucosum (New Species), a Mucin-producing Spirocheta from Pyorrhea Alveolaris, Grown in Pure Culture.*
10. *Noguchi, H. *The Pure Cultivation of Spirocheta Duttoni, Spirocheta Kochi, Spirocheta Obermeieri, and Spirocheta Novyi.*
11. *Noguchi, H. *A Method for Cultivating Treponema Pallidum in Fluid Media.*
12. Lewis, P. A. *The Preventive Action of Diphtheria Antitoxin in Serum-Sensitized-Rabbits.*
13. Churchman, J. W. *The Selective Bactericidal Action of Gentian Violet.*

2. Wollstein and Meltzer working with dogs were able to produce without fail a bronchopneumonia similar to the human type by the intrabronchial insufflation of pure cultures of the streptococcus or of the influenza bacillus. They conclude from their experimental evidence that the different types of pneumonia are produced by specifically different bacteria and that the proper invasion of the micro-organism is the determining factor in the development of pneumonia, the condition of the animal being only a minor element in this regard.

9, 10, and 11. Noguchi has cultivated a new species of spirocheta from a case of pyorrhea alveolaris. He also describes a method for the pure cultivation of four distinct species of spirochetae that are responsible for "relapsing fever." He also describes a new method for obtaining pure cultures of treponema pallidum and allied species of spirochetae in fluid media.

[R. I. L.]

Annals of Surgery.

July, 1912.

1. *Gerster, A. G. *Nephrectomy.* (To be continued.)
2. Taylor, W. J. *End Results in Sixty-three Cases of Operation for Brain Tumor.*
3. Coley, W. B. *Bullet Wound of the Spinal Cord between the First and Second Dorsal Vertebrae; Laminectomy; Removal of the Bullet; Complete Recovery.*
4. *Stillman, S. *The Treatment of the Defect Occasioned by Partial Excision of the Inferior Maxilla.*
5. Mayo, C. H. *Surgery of the Thymus Gland.*
6. Eliot, E., Jr. *The Treatment of Subclavian Aneurysm.*
7. Meyer, W. *On Drainage after Intrathoracic Operations with Special Reference to the Esophagus.*
8. Hotchkiss, L. W. *Acute Pancreatitis with Very Extensive Fat Necrosis.*
9. Powers, C. A. *Acute Diverticulitis of the Sigmoid Flexure of the Colon.*
10. Primrose, A. *Hemorrhage Into the Peritoneal Cavity Caused by Accidental Rupture of the Ovary.*
11. Maclaren, A. *Tuberculosis of the Bladder, Ureter, and Kidney.*
12. Johnson, R. W. *The Tomato Joint.*
13. Le Conte, R. G. *Acute Inflammation of the Long Bones.*
14. Moore, J. E. *Surgery of the Long Bones.*

15. ESTES, W. L. *End Results of Fracture of the Shaft of the Femur.*
16. *LILIENTHAL, H. *Safety in the Operative Fixation of Infected Fractures of Long Bones.*
17. PECK, C. H. *Intratracheal Insufflation Anesthesia (Meltzer-Auer).*

1. Gerster's article is a study of 112 cases of nephrectomy at Mt. Sinai Hospital, N. Y., 1895-1911 (inc.). When dealing with suppurating or tuberculous kidney or neoplasm, he emphasizes the importance of ascertaining the peritoneal reflection immediately upon exposing the fatty capsule, laying bare the blood supply before attempting dissection of tumor. Where peritoneum is very adherent to kidney, he advises excising this portion of the peritoneum *en bloc* with the mass, thus avoiding contamination of the wound or peritoneal cavity by tearing. Of the 112 cases none had post-operative peritonitis. Gerster has never seen serious consequences following tearing of pleura. Accidental arterial hemorrhage during nephrectomy was observed once from slipping of ligature. Venous hemorrhage was observed twice. Secondary post-operative hemorrhage (arterial) was observed once seven days after nephrotomy (nephrectomy; recovery). Old standing adhesions in pyonephrosis may defy separation. The subcapsular enucleation of the kidney is then done and pedicle with portion of reflected capsule ligated with elastic ligature (pure gum one-sixth inch thick). The pedicle sloughs off in 12 to 36 days. The mortality of secondary nephrectomy for pyonephrosis (whether calculous or non-calculous, including hemorrhagic infarct) was about double that of primary nephrectomy (19.35% and 10%). Most cases with primary nephrotomy, however, were in precarious condition and would likely have died with nephrectomy. The mortality of primary and secondary nephrectomy for calculous disease was more than double that for non-calculous suppuration,—including hemorrhagic infarct (20.5% and 9.7%),—and is explained as due to the fact that the latter are acute invasions of short duration. Epitomies of 62 cases are given.

4. Stillman has used heavy silver wire, silver plates, and lately light trusses of silver wire to maintain gap caused by excision of lower maxilla and thus prevent deformity from contraction. These devices usually require removal because of tendency to ulcerate out. The author has noted, however, that if the truss had been in place six months or more, there was surprisingly little deformity upon removal and but little increase in deformity after removal. Trusses demanding removal, have been immediately replaced and worn for several months. The splinting of the lower jaw on the upper jaw by means of clamping the teeth is not often possible on account of the usual poor condition of the teeth. The silver truss has greater application. When truss is finally removed, a bone transplant (section of rib) is inserted. To minimize suppuration of flaps Stillman has all bad teeth removed and the remainder cleaned and polished before operation.

16. Lilienthal presents two methods for the fixation of infected fractures of long bones. Two gimlets are placed firmly in each fragment; one as near the fracture as possible without splitting, the other at a greater distance (an inch or more above the first). Reduction is effected and the fragments held by an assistant or clamps. Two rods are then passed between gimlets at their upper ends. The rods and gimlets are now bandaged firmly together with a plaster of Paris bandage sterilized by baking. The wound is packed wide open. In two or three weeks the gimlets are easily removed. The method has been used in six cases, five with satisfaction. The second method is by plate and screws of Lane modified to facilitate removal. The plate has a small hole at either end and on the inner or bone surface a groove from the hole to the end of the plate. Through the holes are passed piano wire. The grooves carry the wire and permit the plate to lie flat against the bone. The screws are provided with long shafts and pyramidal head for the application of a turning key. The screw shafts and wires project above the wound which is packed or otherwise drained. After two to four weeks the screws are readily removed with the key and the plate drawn out with the wires. This second method has been used in two cases which are convalescing comfortably. [T. W. H.]

THE LANCET.

AUGUST 17, 1912.

1. *SHUFFLEBOTHAM, F. *The Importance of Early Functional Treatment in Cases of Contusions and Sprains of the Back.*
2. *BALLANCE, C. A. *Epithelial-grafting as a Means of Effecting the Sure and Rapid Healing of the Cavity Left by the Complete Mastoid Operation.*
3. *SAMPSON, H. H. *The Operative Treatment of Simple Fracture of the Long Bones in Children.*
4. PURUS, G. C. *A New Method of Demonstrating the Presence of Bacillus Coli in Sewage-polluted Water.*
5. POYNTON, F. J., AND PAINE, A. *A Further Contribution to the Study of the Etiology of Appendicitis as a Result of a Blood Infection in the Particular Reference to the Tonsils as the Primary Seat of Infection.*
6. CROWE, H. W. *How to Fit Up a Laboratory for £10.*

1. Shufflebotham reports a series of cases of back strain or contusion from which permanent or long-lasting injury and disability resulted because no radical treatment was instituted and used. He briefly describes the anatomy of this region. Onset generally takes place after severe strains. He goes over the leading points of diagnosis. Examination of the urine should be a routine procedure in all back cases. For treatment a preliminary stage of rest is essential, helped by firm strapping. Early massage and graduated and regulated exercises should follow.

2. The two essentials to success of operation for the cure of chronic otorrhea are (1) removal of all diseased tissue and (2) the healing up of the large bone wound from the bottom. The advantages of Ballance's method of epithelial-grafting for the latter purpose he claims to be (1) rapid healing of the entire wound, (2) immediate protection of raw bone surface, (3) considerable shortening of the time during which specially skilled attendance is necessary and (4) improvement in hearing. Ballance describes this method of grafting and the alternatives to grafting, including blood-clot dressing, bismuth paste, scarlet red, etc.

3. Sampson believes that the treatment of simple fracture of long bones in children by open operation gives more perfect results than can be obtained by any other method at present in use and that with reasonable care the dangers of the treatment are negligible; the insertion of a metal plate gives no trouble after a clean operation which should be applied to recent fractures and not reserved for the imperfect results of conservative measures. The article is illustrated with numerous plates.

[J. B. H.]

BRITISH MEDICAL JOURNAL.

AUGUST 17, 1912.

1. *MADDEN, F. C., AND SHAHEEN, H. *On Spinal Anesthesia by Stovaine. With Remarks on 1000 Cases.*
2. VEALE, R. A. *Complications Following the Administration of Hedonal.*
3. BIGGS, G. N. *Congenital Syphilitic Deafness Treated by Salvarsan.*
4. ALLPORT, A. *Local Application of Salvarsan in Chronic Superficial Glossitis.*
5. WATT, J. *Acute Formaldehyde Poisoning.*
6. PICTOU, L. J. *A Scheme for Medical Benefit.*
7. PARKINSON, A. S. *The Reform of Hospital Outpatient Department.*

BRITISH MEDICAL ASSOCIATION.

SECTION OF STATE MEDICINE.

8. CHALMERS, A. V. *Introductory Remarks.*
9. *YOUNG, R. J., AND WALLACE, J. S. *Papers on Children and Dental Disease.*
10. PHILLIPS, C. H., et al. *Discussion on Isolation in Scarlet Fever.*
11. BRADBOURNE, A. A. *Visual Defects in Children: Their Management Under Medical Inspection.*
12. McVAIL, J. C., et al. *Discussion on Administrative Measures Consequent Upon the Compulsory Notification of Phthisis.*
13. MACKINTOSH, J. S. *The Effects of Intra-migration on National Health.*

SECTION OF ELECTRO-THERAPEUTICS AND RADIOLOGY.

14. *HOLLAND, C. T. *Introductory Remarks.*
15. *RUTHERFORD, E. *The Chemical Effects Produced by the Radiation from Active Matter.*
16. *SHAW, E. H., et al. *Discussion on Ray Therapeutics in Malignant Disease.*
17. *HERNAMAN-JOHNSON, F. *An Inquiry Into the Causes of Failure of X-ray Treatment in Deep-seated Cancer.*
18. *HOWLETT, E. H. *The Standardization of Radium Dosage.*
19. *ARMSTRONG, W. *The Therapy of the Radio-oxygen Bath.*

1. Madden and Shaheen, basing their observations on 1000 cases of stovaine anesthesia, have come to the conclusion that it is a valuable alternative to ether or chloroform in operations on certain areas but is never destined to replace them. They consider it a reliable anesthetic for all operations below the costal margins but it should not be employed any more willingly than other anesthetics in cases where any anesthetic is dangerous. They do not consider stovaine as entirely devoid of danger but urge its further use but with care and conservatism.

9. Young, Wallace, et al, describe the great need of dental clinics for children, the difficulties experienced from children and parents and the best methods of overcoming each.

14, 15, 16, 17, 18, and 19. These papers on x-ray and radium and their uses were short and followed by discussion of the subjects. They are of interest to radiologists and others working along these lines but too limited in their scope to be of great value.

[J. B. H.]

THE INDIAN MEDICAL GAZETTE.

AUGUST, 1912.

1. *SCOTT, L. B. *Nastin Treatment of Leprosy.*
2. *FINK, L. G. *Mongolian Birth-marks.*
3. *WOOLLEY, J. M. *Insanity in the Andamans.*
4. *JACKSON, T. *Cases of Hydatid Cyst.*
5. *TIRUMURTI, T. S. *An Interesting Case of Multiple Hydatid.*
6. HUSBAND, J., AND HODGE, H. V. *A Peculiar Fever Met With on the North-west Frontier.*
7. CHITALE, P. K. *Observations on Three Hundred Cases of Guinea-worm.*
8. STEEN, H. B. *Large Renal Calculus.*

1. Scott reports a series of 29 cases of leprosy treated with subcutaneous injections of nastin. Nearly every case showed improvement. Four cases were "cured," though the permanency of cure remains to be determined.

2. In this anthropologic study, Fink reports on the characteristic blue patches observed on the skin of Burman and Karen children in the Myaungurya district of Burma. He describes the physical characteristics of the Mongol and discusses the relationship of these blue patches to spina bifida and the ethnologic problems involved in the discovery of similar pigmentation in Italy. The question seems one of Mendelian heredity.

3. From a comparative study of insanity and crime among the convicts in the penal colony at the Andaman Islands, Woolley finds that 11.4 per 1000 of the convicts are insane, that paranoia is unusually prevalent, and that insanity is considerably more frequent among murderers than among other criminals.

4 and 5. Jackson and Tirumurti report a total of six cases of hydatid cyst, the last showing extensive echinococcal infection of the abdominal viscera.

[R. M. G.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT. No. 24.

JUNE 13, 1912.

1. *BIER, *Improved Technique for the Hyperemic Method in the Treatment of Pulmonary Tuberculosis.*
2. KIONKA. *Radium Emanations in Therapeutics.*
3. SCHIDORSKY AND REIM. *The Value of Acid Agglutination of Bacteria in Diagnosis of Typhoid.*
4. FEULGEN. *Technique for Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis.*
5. LAMPE. *The Blood Changes in Basedow's Disease.*
6. GERGANOFF. *Sources of Error in Quantitative Estimations of Ferments in the Stool.*
7. HARTWICH. *The Relation of Cirrhosis of the Liver to Splenic Tumor.*
8. SÜSSENGUTH. *The Possible Necessity of Operative Treatment in Atrophy of the Prostate.*
9. SIPPEL. *Cohabitation Cystitis and Pyelitis.*
10. RISSMANN. *Intramuscular Injections of Ringer's Solution in Toxicoses.*
11. JAEGER. *The Elimination of Labor Pains.*
12. ISAKOWITZ. *Injury to the Eyes from Watching a Solar Eclipse.*
13. SELLIE AND REITER. *The Place of Vaccine Therapy in Urology.*

1. Bier announces that the former objections to the hyperemic treatment of surgical tuberculosis are eliminated by the administration of potassium iodide during the procedure. By this method he has been able to apply the constricting band twelve hours out of the twenty-four without bad after-effects, such as were common in cases not given the drug. The author places the proper dose at about 45 grains a day for an adult. He believes that the iodin checks ferment action, and possibly has a selective action on the diseased tissues.

[C. H. L., Jr.]

No. 25. JUNE 20, 1912.

1. COENEN. *Gangrene of the Lungs as a Complication of Gastric and Intestinal Resections.*
2. MANASSE. *Chronic Otitis Media and Cholesteatoma.*
3. WECHSELMANN. *Anaphylactoid Phenomena with Repeated Injections of Salvarsan.*
4. GRUNFELD. *Neosalvarsan.*
5. RUNGE. *Roentgenotherapy of Climacteric Bleeding.*
6. *BRAUN AND HASLER. *A New Technique for Examining Spinal Fluid.*
7. RAETHER. *The Diagnosis of Organic Brain Lesions.*
8. KLOSE. *Intermittent Hour Glass Stomach.*
9. STEIN. *Medical Moving Pictures.*

6. The authors report on 41 cases examined by means of Sachs and Altmann's hydrochloric acid test. Only 1 cc. of spinal fluid is needed, and it may have been kept for several days without interfering with the reaction. The reagent consists of one part normal HCL and 299 parts of distilled water. Five volumes of the reagent are added to one volume of spinal fluid. The reaction causes a distinct turbidity in a meningeal fluid, while that from a normal person remains clear. The reaction is particularly marked in tubercular meningitis. The authors regard the test as the simplest and best method of determining pathological conditions of the spinal fluid.

[C. H. L., Jr.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT. No. 31.

JULY 30, 1912.

1. v. LEUBE. *Combating Tuberculosis in Childhood.* (To be concluded.)
2. WEBER, L. W. *The Clinical Conception of Epilepsy.* (To be concluded.)
3. *FRANZ, R. *Significance of Intoxication by the Decomposition of Albumen in Child-birth and Eclampsia.*
4. *WOLFF, A., AND MULZER, P. *Statistics of the Treatment of Syphilis with Neosalvarsan.*
5. *KALL, K. *Experiences with Neosalvarsan.*
6. SPUDE, H. *The First Experiments with a New Combination-treatment for Cancer.*
7. BACH H., AND STRAUSS, E. *Treatment with Atophan.*
8. BERTKAN. *Two Remarkable Cases of Fracture of the Thigh of a Child at Birth.*
9. GOEBEL. *Plastic Repair of the Anterior Portion of the Rectum with the Posterior Vaginal Wall. Wall.*
10. LANGSTEIN, L., AND EDELSTEIN, F. *Iron-contents of Woman's and of Cow's Milk.*
11. GROBER, G. B. *Studies of the Wassermann Reaction on the Corpse.*

3. Franz presents strong evidence seeming to show that the onset of labor is the result of poisoning by decomposition products of the albumen of the placenta.

4. The writers report their results of the use of neosalvarsan on thirty syphilitics, twelve having primary lesions and the remainder secondary lesions.

They conclude that neosalvarsan is far less powerful than salvarsan as a specific for syphilis even when used in much larger quantities and that it is far more dangerous. They warn particularly against its use in ambulant patients.

The toxic effects observed were as follows: a chill in one case, Herxheimer's reaction in three cases, headache, vomiting and diarrhea together in 14 cases, extensive drug eruption in four cases, herpes labialis in two cases, nephritis, paralysis or other severe symptoms in one case.

5. Having treated 39 cases of syphilis with neosalvarsan the writer warns against frequent repetitions of injections at short intervals because he observed severe intoxications following the use of neosalvarsan in this way. He also condemns the recommendation of Tonton that ambulant patients be treated with it.

[G. C. S.]

BERLINER KLINISCHE WOCHENSCHRIFT. No. 22.

MAY 27, 1912.

1. KAREWSKI, F. *Retroesophageal Phlegmon from Foreign Bodies.*
2. KLEMPERER, G., AND MÜHSAM, R. *Splenic Anemia Cured by Extirpation of the Spleen.*
3. SOEGAARD, M. *Further Researches Concerning the Appearance of Cancer in Lepers.*
4. WEINBERG, W. *Heredity and Sociology.*
5. LUDKE, H. *The Production of Anti-bodies in the Culture of Living Body Cells.*
6. ENGELMANN, W. *The Emanation Contents of the Blood after Drinking Emanation Waters.*
7. SCHARFER, P. *Clinical Experiences with the New Hypnotic and Sedative, Luminal.*
8. HIPPO, F. *Melubrin, a New Antipyretic and Antirheumatic.*
9. HINZE, V. *The Care of the Teeth in Lead Workers.*

No. 23. JUNE 3, 1912.

1. *WOHLGEMUTH, J., AND NOGUCHI, Y. *An Experimental Contribution to the Diagnosis of Contusion of the Pancreas.*
2. BITTORF, A. *A Collection of Cases Illustrating Derangements of the Internal Secretions.*
3. STRUBELL, A. *Pharmaco-dynamic Problems. The Influence of Drugs on the Opsonic Index.*
4. ROSENTHAL, E. *The Prognosis of Puerperal Fever.*
5. STANDBERG, O. *Three Cases of Lupus Vulgaris of the Tongue.*
6. GLUCKSMANN, G., *New Methods for the Extraction of Foreign Bodies from the Upper Air and Food Passages.*
7. PEISER, J. *Phimosis and Hydrocele in Nursing Infants.*
8. JENSEN, V., AND LEILBERG, J. *The Clinical Importance of the Syphilis Reaction of Hermann and Perutz Compared with the Wassermann Reaction.*
9. ZIMMERN, F. *Salvarsan Reaction on the Teeth.*
10. WOLFSOHN, G., AND MARCUSE, E. *Neurofibromatosis and Acromegaly.*
11. *The Use of the Salicylates in Gynecology.*

1. The authors demonstrated the appearance of diastase in the blood and urine of dogs, whose pancreas had been injured experimentally. The diastase appeared to a greater or less extent, and in a varying length of time depending on the extent of injury to the pancreas. The technic of the test is simple and well described. The authors insist on its value, in cases of severe abdominal contusion.

[J. B. S., Jr.]

DEUTSCHE ZEITSCHRIFT FÜR CHIRURGIE.

BAND 116.

FESTSCHRIFT, HERRN PROFESSOR TH. KOCHER.

1. ARND, B. *Tuberculosis of the Thyroid Gland.*
2. DIND. *Several Cases of Sporotrichosis, and Sporotrichosis in Switzerland.*
3. DOEPFNER, K. *Contrecoup-concussion of the Brain, and Contrecoup-fracture of the Skull.*
4. FEURER, G. *Resection of the Stomach.*
5. *FONIO, A. *Results Obtained with the Gluzinski Test, as Modified by Kocher, for Ulcer of the Stomach. A Contribution to Stomach Diagnosis.*
6. HEDINGER, E. *Tuberculosis of the Thyroid Gland.*
7. KAUFMANN, C. *Diagnosis and Treatment of Simple Fractures of the Wrist.*
8. *KOCHER, A. *The Value of Gastro-enterostomy.*
9. *KOPP, J. *A Case of Porencephalo-hydrocephalus (Internal, One-sided and Traumatic). A Clinical Study of Porencephalus and hydrocephalus.*
10. KUMMER, E. *A Procedure for the Radical Operation of Femoral Hernia.*
11. LARDY, E. *The Use of the Tincture of Iodine in the School at Bern.*
12. LAUPER, J. *Coxa Vara.*
13. LINDT, W. *Experiences with the Radical Treatment of Inflammation of the Frontal and the Ethmoid Sinuses Since the Year 1902.*
14. *MATTI, H. *The Combination of Baseaow's Disease with Hyperplasia of the Thymus.*
15. PETTAVEL, C. A. *The Pathological Anatomy of Basedow's Disease.*
16. PFAEHLER, P. *The Ambulatory Treatment of Inguinal and Umbilical Hernia in Early Infancy.*
17. DE QUERVAIN, F. *The Technic of Goitre Operations.*
18. VON RODT, W. E. *The History of the Thyroid.*
19. *ROLLIER. *The Altitude and Sun Cure for Tuberculosis, Its Remote Effects, and Control with the Roentgen Rays.*
20. ROUX, C. *Perforations Into the Rectum, Especially Tubercular Pyosalpinx.*
21. SCHWYZER, G. *The Development of Aneurysms and Varices of the Axillary Blood-vessels from Gun-shot Wounds.*
22. SIEBENMANN, F. *Results in the Local Treatment of Laryngeal Phthisis with Barenek Serum, Electric Caustics, and the Roentgen Ray.*
23. SIEGRIST, A., AND KOTTMANN, K. *The Etiology of Conical Cornea.*
24. *TAVEL, E. *The Treatment of Varix with Artificial Thrombi.*

25. WANNER, F. *The Influence of High Altitudes on the Resisting Power of the Red Blood Corpuscles.*

26. WIELAND, E. *Spontaneous Gangrene of Two Fingers Following Necrosis of the Umbilical Cord and Paronychia Streptomycosis in an Infant Two Months Old.*

27. WILDBOLZ, H. *The End Results of Operative and Non-operative Treatment of Kidney Tuberculosis.*

5. The author has tried out the Gluzinski test as modified by Kocher for the differentiation of cancer of the stomach from ulcer. The test is based on the assumption that there is always an increase of free HCl in the stomach where an ulcer exists, and a decrease where carcinoma exists, accompanied with a chronic mucous gastritis. The value of the Kocher modification consists in the fact that the relative increase or decrease in the amount of HCl secreted by the stomach for the digestion of different meals, at separate times during the day is the important factor, the actual amount of HCl being disregarded as to whether it is above or below normal. The technic for the test breakfast is the ordinary one, the contents of the stomach being washed out and removed at the end of forty-five minutes. A test dinner is then given consisting of 100 gms. of beef, 150 gms. of potato cooked with 20 gms. of fat, and no fluid. This is removed at the end of two hours. The relative amounts of HCl from the two meals is calculated, and a smaller amount from the dinner speaks for cancer, and a larger amount for ulcer.

A long careful table appended to the article shows that the results of this method were conclusive in 26 of the 30 cases, and that in four of the cases where the findings were somewhat doubtful, the ulcer must have been undergoing cancerous degeneration at the time of the first test.

8. The author reviews fifty cases of gastro-enterostomy, and the results obtained after a period of from two to twelve years for non-malignant stomach cases. He does not close off the pylorus and observed a reflux of bile in almost every case, but with no bad effects. The bowel functioning appeared normal, and there was no recurrence of the ulcer in any case. He concludes that the operation is an absolutely safe one, if performed with reasonable care.

The immediate effects as well as the ultimate ones are so good, where acute ulcer is present, that he sees no indication for resection. The method of choice is the longitudinal retro-colic gastro-enterostomy, with the opening at the lowest end of the greater curvature of the stomach, thus ensuring the best stomach drainage, and the proper functioning of the gastric juices. It also makes for the healing of the ulcer. The complications following anterior gastro-enterostomy render it not so safe. Occlusion of the pylorus, he does not think advisable, as it renders possible restitution of function following the healing of the ulcer impossible.

His best results were obtained with chronic ulcer, the ulcer healing in the majority of the cases.

He believes that the dangers of carcinomatous degeneration of an ulcer is much lessened by operation. The earlier the operation being performed, the less the danger. Should carcinomatous degeneration be found, resection should be performed if possible.

9. The author reports an interesting case of a young woman, suffering with seizures of Jacksonian epilepsy, as a result of a fall in her infancy. Operation showed an enormous cyst at the site of the old injury, the mildness of the symptoms being out of all proportion to the extent of the cavity. The cavity was filled with salt solution, and Kocher decompressive valve made, with the subsequent recovery of the patient, and no return of the symptoms after five years. A very comprehensive bibliography accompanies the article, together with a detailed discussion of other cases.

14. The author sounds a note of warning in the too hasty operation for exophthalmic goitre without sufficient examination of the thymus. He reports ten cases where enlarged thymus was found following death after a thyroidectomy, and a search through the literature showed 133 others. In his 10 cases, the adrenals were abnormally small. He thinks that operation on the enlarged thymus first might lessen the danger, if accompanied by treatment with epinephrin. A careful examination of the thymus should be made in every case where there is to be a operation on the thyroid.

19. This article is a further report of the good results obtained by the conservative, hygienic treatment, of bone and joint tuberculosis, by the same author whose work was mentioned in a recent issue of the JOURNAL. The article is mainly taken up by a number of good radiographs of cases before and after treatment, and serves to emphasize the importance of sun and air.

24. The author calls attention to the advantages of treating various forms of varices by means of artificial thrombi, either with or without resection, and ligation of the veins. He points out that resection and ligation may be of no avail unless a thrombus forms, and this he ensures by his method. He describes in detail, his technic consisting of the injection of a 5% solution of phenol into various points of the vein. This is done two or three days after ligation and resection. He reports a series of fifty cases in all of which the results have been good.

[J. B. S., Jr.]

WIENER KLINISCHE WOCHENSCHRIFT. No. 34.

AUGUST 22, 1912.

1. *SORGO, J. *The Surgical Treatment of Pulmonary Tuberculosis.*
2. KOERBL, H. *Rupture of the Trachea and Perforation of the Esophagus in Laryngeal Fractures.*
3. BAUER, K. *Rupture of a Caseous Lymph-node Into the Aortic Arch.*
4. GOLDMANN, R. *A Case of Acute Somnambulism Following a Periostitically Affected Tooth.*

1. From a clinical study of 45 cases of phthisis, the author believes that artificial pneumothorax, by collapse and compression of the affected lung, affords the most favorable conditions of cure. The result of treatment is ultimately dependent on the condition of the other lung.

[R. M. G.]

IL POLICLINICO.

AUGUST, 1912.

SURGICAL SECTION.

1. FRATTIN, G. *Experimental Researches on the Pathogenesis of Traumatic Peritonitis Without Intestinal Perforation.*
2. LEOTTA, N. *Hyperplastic Hypophysary Struma with Acromegaly: A Contribution to the Pathology and Surgery of Hypophysary Tumors.* (To be continued.)
3. *LEONARDO, I. *Regeneration and Plastics of the Peritoneum.* (To be continued.)

3. In this initial paper, Leonardo reports the results of his experimental researches on the formation of adhesions, in dogs and rabbits, after the removal of pieces of parietal peritoneum, and on regeneration of the peritoneum. His first series, of eight experiments, consisted in peritoneal resection without omentectomy; the second, of six experiments, in peritoneal resection with contemporaneous omentectomy. He concludes that the parietal peritoneum regenerates completely, that the great omentum does not exercise any influence on such regeneration, but that in 50% of cases adhesions formed between the abdominal wall and the omentum or intestinal coils.

[R. M. G.]

Miscellany.

TOTAL NUMBER OF EXISTING VERTEBRATE ANIMAL SPECIES.

In the issue of the JOURNAL for March 28, 1912 [Vol. clxvi, p. 499], we published an item regarding the total number of existing animal species. In the issue of *Science* for Sept. 6 is an estimate, by H. W. Henshaw, of Washington, D. C., of the number of known species of living vertebrates, which is interesting for comparison. Mr. Henshaw estimates the total number of existing vertebrate species as 47,200, distributed as follows:—

1.	Mammals	7,000
2.	Birds	20,000
3.	Crocodiles and turtles	300
4.	Lizards	3,300
5.	Snakes	2,400
6.	Frogs and toads	2,000
7.	Salamanders	200
8.	Fishes	12,000
	Total	47,200

Correspondence.

BOSTON, September 6, 1912.

Mr. Editor: About six years ago the writer began to use vaccines in the treatment of typhoid fever. Since that time he has thus treated more than one hundred cases and has obtained numerous articles upon the same subject written by physicians in various parts of the world. It seems possible, however, that some may have escaped notice. He also realizes that many of the profession may have treated some cases without reporting them. A paper upon the subject is now in the course of preparation. In this it is earnestly desired to incorporate reports from a large number of cases, good, bad, and otherwise. He accordingly makes the following request to the readers of this JOURNAL:

Will any one who has used vaccines in the treatment of typhoid fever, whether but one case or more, kindly communicate to him that fact accompanied by name and address of the reporter? If the results have already been reported, a note of the journal in which they appeared will be sufficient. If they have not been reported, a short blank form will be sent to the physician to be filled out. Due credit will be given in the article to each person making a report. If any physician happens to know of other confrères who have any such cases, it will be appreciated if he sends their names, as they may not happen to read this note. It is hoped that by this means a sufficient number of cases may be collected to settle somewhat definitely the now mooted question whether vaccines are or are not of benefit in typhoid therapy.

Reports of cases will be accepted at any time in the future but preferably by November or December of the present year.

Kindly address DR. W. H. WATTERS, Director of the Department of Pathology and Bacteriology, Evans Institute for Clinical Research, Boston.

RESIGNATION.

DR. FREDERICK L. DUNLAP, of Washington, D. C., resigned on Sept. 5th as member of the United States pure food board and associate chemist of the federal bureau of chemistry in the Department of Agriculture.

RECENT DEATHS.

DR. FRANK WALLACE BRETT, who died of cerebral hemorrhage on Aug. 31st in South Braintree, Mass., was born at Hingham, Mass., in 1861. He graduated from the Boston College of Physicians and Surgeons in 1895, and since that time had practised his profession in Braintree, where for several years he served on the local board of health. He was a Fellow of the Massachusetts Medical Society, and a member of the Norfolk South District Medical Society. He is survived by his widow and by two sons.

DR. AUGUST SARGENT BOLSTIC, who died at Worcester, Mass., on Sept. 3d, was born in 1867. He graduated from the Dartmouth Medical School in 1890. He was a Fellow of The Massachusetts Medical Society.

DR. CHARLES DELANO COOK, who died on Sept. 5 in Brooklyn, N. Y., was born at Hardwick, near Worcester, Mass., in 1825. He was a member of many dental and other scientific societies.

DR. JOSEPH P. ROOT, who died of accidental trauma at Kansas City, Mo., on Sept. 4th, was born in 1862. He was a dentist and a writer on subjects in dentistry.

DR. W. J. MCGEE, who died of carcinoma on Sept. 4th at Washington, D. C., was born in Dubuque County, Iowa, on April 17, 1853. He was self-educated, and achieved distinction as an anthropologist and geologist. From 1893 to 1903, he was chief of the Bureau of American Ethnology. He is reported to have directed that his body be used for dissection at the Jefferson Medical College, Philadelphia.

DR. JAMES CORNELIUS MURPHY, who died on Sept. 3d, at Norwood, Mass., was a native of that town. He received the degree of A.B. from Boston College in 1901, and that of M.D. from the Harvard Medical School in 1905. From 1906 to 1907 he served as a house-officer at the Carney Hospital, South Boston. He was a member of the American Medical Association, and a Fellow of the Massachusetts Medical Society. He is survived by his widow and by one child.

DR. CHARLES THORNDIKE PARKER, who died of pneumonia at South Hamilton, Mass., on Aug. 31, was a native of Boston. He studied medicine at the College of Physicians and Surgeons, New York, and for a time practised his profession in that city.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, AUGUST 31, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	12	6
Chicago	—	—	Waltham	10	3
Philadelphia	—	—	Brookline	7	1
St. Louis	—	—	Chicopee	16	10
Baltimore	—	—	Gloucester	16	3
Cleveland	—	—	Medford	5	—
Buffalo	—	—	North Adams	8	1
Pittsburgh	—	—	Northampton	13	2
Cincinnati	—	—	Beverly	4	—
Milwaukee	—	—	Revere	5	2
Washington	—	—	Leominster	5	1
Providence	—	—	Attleboro	—	—
Boston	192	64	Westfield	4	2
Worcester	40	13	Peabody	—	—
Fall River	54	29	Melrose	1	—
Lowell	24	9	Woburn	3	1
Cambridge	21	7	Newburyport	2	1
New Bedford	35	21	Gardner	—	—
Lynn	18	8	Marlboro	3	3
Springfield	23	4	Clinton	3	1
Lawrence	20	7	Milford	0	—
Somerville	10	2	Adams	4	2
Holyoke	24	11	Framingham	2	—
Brockton	16	6	Weymouth	—	—
Malden	6	1	Watertown	1	0
Haverhill	6	3	Southbridge	3	—
Salem	12	6	Plymouth	1	—
Newton	13	3	Webster	3	4
Pitchburg	17	7	Methuen	2	1
Taunton	13	5	Wakefield	1	—
Everett	15	1	Arlington	1	—
Quincy	—	—	Greenfield	1	1
Chelsea	12	2	Winthrop	0	—

Original Articles.

INDICATIONS FOR THE MAJOR OBSTETRICAL OPERATIONS.*

BY FRANKLIN S. NEWELL, M.D., BOSTON.

Assistant Professor of Obstetrics and Gynecology at Harvard University.

THE greatest advance in obstetrics in the last few years has been in the realization that obstetrics is properly a special branch of surgery, and that the application of modern surgical methods to the solving of obstetric problems has resulted in a marked change in the attitude of the obstetrician toward his patients. Before the development of asepsis placed abdominal surgery on a firm basis, the problem which the obstetrician had to solve was whether in a given case any method could be devised by which the individual patient could be delivered *per vaginam*, irrespective of the damage to her soft parts or to the child. This question was often a difficult one to answer since the conditions present in the individual case were often such as to render the ordinary obstetric operations of doubtful outcome, and the results were, therefore, often unsatisfactory. The lives of many women and the health of many more were sacrificed in the attempt to solve the problem with the means at our command, and the fetal life received comparatively little attention, and deservedly so, as compared with the maternal life. The demonstration of the safety of modern surgery and its application to obstetrics has solved the problem for us, and we can say today that practically every healthy woman can be safely delivered, with due regard to her after health and the well-being of her child, provided the conditions which call for a departure from the routine practice are discovered either before labor or early in labor, so that she can be placed under proper conditions to receive the care she needs. The question which we now have to answer is not, whether a given patient can be delivered by any method, but by what method can delivery be most safely accomplished in the given case? This change in our point of view has brought about a great change in the methods of conducting an obstetric practice and one which will grow more marked as time goes on. Under the old practice our choice of operations was limited and nature was considered supreme, each patient being allowed to go into labor irrespective of the conditions present, and difficulties were met when they arose as efficiently as possible under the circumstances, the patient being studied little or not at all before labor began. Under modern conditions each patient is regarded as presenting a problem to be studied, and it is recognized that the riddle must be solved before labor begins if the best results are to be obtained. In other words prophylaxis is assuming a greater importance in obstetric work than ever before. Every patient must now be studied from a new standpoint and the question to be answered today is this: What method of delivery offers the least danger to life and health for the mother combined with the greatest safety for the child?

This change in our viewpoint has been brought about by the introduction into obstetric work of the so-called major operations, by which we mean abdominal Cesarean section, followed or not by removal of the uterus according to the indications present, and enlargement of the pelvic canal by pubiotomy, followed by one of the ordinary obstetric operations; or, in other words, the performance of a cutting operation for delivery of the child instead of dragging it through the pelvis by brute force.

CESAREAN SECTION.

Before discussing the indications for an abdominal delivery it seems best to consider carefully the conditions which render abdominal section a safe or unsafe procedure, since the presence of certain conditions is recognized as converting what should be a safe operation into one too dangerous to be advised, and as the primary object of modern obstetrics is to preserve the fetal life without unduly jeopardizing the life or health of the mother, all conditions which definitely increase the danger to the mother should be considered as relative contra-indications to Cesarean section.

Under modern conditions an abdominal section on an uninfected patient is so safe a procedure that in general surgery an exploratory operation may be properly recommended for diagnostic purposes only, but any failure in technic transforms what should be a safe procedure into one of the greatest danger. For this reason Cesarean section is never to be advised when any other operation is possible unless the surroundings are such as to allow of proper asepsis at the time of operation. If the slightest suspicion of uterine infection is present Cesarean section is absolutely contra-indicated unless no other means of delivery is possible, since the opening of a septic uterus into the peritoneal cavity, particularly if followed by suture and replacement, is almost sure to be followed by the development of a septic peritonitis and by the death of the patient. Therefore, the performance of a Cesarean section on a patient who has developed a temperature during labor, or in whom a questionable uterine discharge has developed, should never be considered when any other method of delivery is possible, since, although these symptoms do not necessarily denote an infection of the uterus, they are so strongly suggestive of it as to absolutely contra-indicate an elective abdominal delivery. There are, however, many border-line cases in which uterine infection cannot be definitely demonstrated, in which the question of operation will inevitably arise, and these cases require the most careful judgment. There is no

* Read at the annual meeting of The Massachusetts Medical Society, June 11, 1912.

question but that each vaginal examination made shortly before or during labor predisposes to uterine infection and, therefore, a patient who has been subjected to repeated vaginal examinations during labor, even under the most favorable conditions must be looked upon as a relatively unfavorable surgical risk, and an abdominal delivery should be avoided, if possible. It naturally follows that the less perfect the aseptic precautions at examination the greater will be the risk of infection with a corresponding increase in the risk of the abdominal delivery.

Experience has also shown that the prognosis of Cesarean section is altered very markedly for the worse if any attempts at operative delivery *per vias naturales* have preceded the section, although the aseptic technic of the operator may have been above reproach. For this reason Cesarean section should never be considered as a legitimate operation after the failure of a serious attempt at delivery *per vaginam* except in the rare case when the extraction of even a perforated child is considered impossible.

The statistics of the Cesarean operation seem to show furthermore that the toxemia produced by the muscular exertion of labor has a marked influence on both the mortality and morbidity of abdominal delivery, as distinguished from true infection, and it seems certain that the effects of uncomplicated labor must be considered as affording a relative contra-indication to Cesarean section. Primary Cesarean section, *i.e.* operations at the time of election, before labor begins or in the early hours of a slight labor, is attended with practically no maternal or fetal mortality or morbidity. Each hour of active labor apparently adds to the risk of operation, although in the first twelve hours of labor the risk to the individual patient will be a comparatively slight one unless the labor is unusually severe. After labor has become active the risk increases steadily until the point is reached sooner or later at which the risk of abdominal delivery is too great for the operation to be advised, except as the only possible means of effecting delivery, although many cases will undoubtedly recover if operated on at even a late period of labor and when apparently exhausted. This increase in the risk of operation is so definite that a secondary or late Cesarean operation should never be advised unless the patient and her husband have a clear understanding of the risks involved and have deliberately chosen to assume the risk for the sake of having a living child. If the rhythm of the uterine contractions is unchanged, if the uterus relaxes normally between contractions, if the membranes are unruptured and no attempts at pelvic extraction have been made, the results of the late operation will be better than if the converse of these conditions exists, but the late Cesarean must be classified as a dangerous surgical procedure and should only be undertaken when no other method of delivery seems possible, unless the patient understands the risks involved and is willing to assume them.

The primary object of an abdominal delivery is in most cases to preserve the life of the child, but the mother should never be subjected to an avoidable dangerous operation in order to save a child, whose life must be regarded as compromised by the strain of a long, hard labor, without a full understanding of the risks involved.

Patients who are suffering from the acute exanthemata or other acute infectious diseases should be regarded as infected cases. An abdominal delivery should never be considered in cases of this nature, except when the mother's life is despaired of and the child is alive and in good condition, provided any other method of delivery can be undertaken with a hope of conserving the chances of the mother, even though it may involve the sacrifice of the child, since under these conditions the development of a septic peritonitis is extremely likely.

Acute and chronic nephritis should also be regarded as relative contra-indications to the elective Cesarean section as the patient will seldom be in a condition to withstand even a mild peritoneal infection on account of her lowered resistance, and it is probable that a certain degree of peritoneal infection follows almost every laparotomy.

For an abdominal delivery to be justifiable the patient must be in such surroundings that it is possible to provide aseptic conditions for the performance of the operation and proper care for the patient after operation.

THE INDICATIONS FOR THE CESAREAN OPERATION.

In the early days when Cesarean section was seeking recognition as a legitimate surgical procedure it was natural that its advocates should be extremely cautious in recommending its performance, and as we look through the early literature we find that the indications for which the operation was advised were limited to those cases in which the pelvic delivery of a living child was thought to be impossible, whether on account of contraction of the pelvis, the size of the child, or because of obstruction of the pelvic canal by a new growth to a degree that the passage of the child through the pelvis was an impossibility. For this reason we find that the absolute pelvic indication for the Cesarean section was placed at a point at which the delivery of a full term child, even after a destructive operation, was impossible. Contraction of the true conjugate to 5 cm. or below was originally set as the absolute indication for the operation. The relative indication was placed at 7½ cm., it being usually possible to extract a child after a destructive operation through a pelvis the true conjugate of which measures more than 5 cm., although it is impossible to extract an unperforated child (at term) through a pelvis under 7½ cm. The good results which attended the Cesarean operation under proper conditions have led to a marked extension of the pelvic

indication. At the present time 7½ cm. has been agreed upon as the absolute indication for Cesarean section, it being impossible for a spontaneous or an operative pelvic delivery to be accomplished through a pelvis of this size or smaller if the child is of average size. The relative indication has been likewise broadened to 8½ cm. in flat pelves and 9 cm. in generally contracted pelves, since Cesarean section at the time of election has been demonstrated to be less dangerous for both mother and child than an operative pelvic delivery in pelves of this size. It is fair to say, however, that at the present time we do not consider the degree of pelvic contraction as the most important factor to be considered in deciding on a Cesarean section, and we recognize that the size of the fetal head as compared with the pelvic canal is of greater importance in the majority of cases than the size of the pelvis alone. There is no doubt but that if the majority of patients who present a relative indication for Cesarean section are allowed to go into labor they can be delivered of a living child after a pubiotomy in case other methods of delivery fail, and the difference of opinion that exists among different authorities as to the method of conducting cases which are close to the upper limit of the relative indication depends on the personal equation of the individual obstetrician. One operator will say that in his opinion all primiparæ in whom the outcome of labor is only slightly dubious, should be submitted to the test of labor, the final delivery to be accomplished in accordance with the results of this test. Other operators believe that with Cesarean section at the time of election demonstrated to be a safe operation, all cases in which a real doubt as to the outcome of labor exists should be submitted to a primary Cesarean section as the safest method of procedure for both mother and child. The reason for this difference of opinion seems to be that the operators who prefer to treat the doubtful cases by the old established methods of obstetrics and see what the outcome of labor will be before deciding on the treatment, believe that they are pursuing a conservative policy, since a considerable proportion of the doubtful cases will undoubtedly be delivered either spontaneously or by pelvic operation of moderate difficulty, although a considerable number of the babies will be lost, and a greater number of mothers seriously injured by this policy. It seems fair, however, to ask under the present conditions what is conservatism? Is a man a conservative who knowingly subjects both mother and child to a serious risk because in the days before Cesarean section was demonstrated to be a safe operation the pelvic operations were the only ones which could fairly be advised in doubtful cases, be the results what they might; or should a man be classed as a conservative who says frankly, after exhausting every means at his command to arrive at a conclusion, that here is a patient in whose case the outcome of the older methods is doubtful, but that a primary Cesarean section performed before labor begins practically guarantees the life and health of both mother and child at a minimum of risk? It seems to me that in this connection conservatism is a poor word, since to me conservatism means the conservation of the interests of both patients at the least possible risk for either mother or child, whereas in the ordinary acceptation of the term conservatism is taken to mean following the traditions of obstetrics that were established in the days when abdominal surgery was considered almost necessarily fatal.

I believe that all patients in whom a serious doubt exists as to the probability of a spontaneous or easy operative delivery are best treated by primary Cesarean section, and that the test of labor, except in cases where the patient chooses to undergo this test with a full understanding of the dangers which it entails, should be obsolete. We cannot, however, lay down a definite rule which will cover all cases. In cases of doubt the patient should be anesthetized during the last month of pregnancy and the attempt made to engage the fetal head in the pelvic brim. If this is possible and no other reason for abdominal delivery exists the patient should be allowed to go into labor. If, however, it is impossible to engage the head in the brim, and particularly if the head definitely overlaps the symphisis pubis, Cesarean section should be unhesitatingly chosen as the safest means of delivery.

We recognize at the present time that there are certain other factors which must be considered in the given case. If the comparison between the maternal pelvis and the fetal head shows only a slight discrepancy, we know that the majority of women will succeed in molding the fetal head to a degree that it will pass through the pelvic brim, if the uterine contractions are of normal force, but we must consider first whether in the given case this molding is liable to occur, and second whether the maternal powers are sufficient to accomplish this without undue strain. For proper molding of the head to occur two factors are necessary: first, powerful uterine contractions to shape the head, and second, a head which is not unduly ossified. If the patient is well nourished and in good muscular condition it is fair to assume that she will have normal uterine contractions which will exert sufficient force to produce proper molding of the head. If, however, she is feeble and flabby muscularly, it is at least possible that the uterine contractions will be too weak to accomplish the degree of adapting necessary for the passage of the head through the pelvis; and in cases of this sort there is no question but that a primary Cesarean section, though perhaps unnecessary in certain cases, offers less risk for both mother and child than the test of labor and a difficult pelvic operation afterwards. We cannot estimate the ossification of the fetal head until after labor has begun, and this must al-

ways remain an uncertain factor in our choice of operation, unless we decide to apply the test of labor in all doubtful cases.

Contraction of the pelvic outlet, combined or not with a faulty inclination of the pelvis, probably causes more trouble in our American-born women than contraction of the pelvic brim, and the pelvic outlet should always be carefully measured during pregnancy. If the transverse diameter of the outlet between the ischial tuberosities measures more than 8½ cm. it is fair to assume that the pelvic outlet will cause no obstruction to the delivery of an average sized child. If, however, the transverse diameter of the pelvic outlet is less than 8½ cm. the passage of the outlet is likely to be attended with considerable difficulty; marked laceration of the soft parts is almost inevitable, and it is also possible that serious injury to the child may occur. In these cases the posterior sagittal diameter of the pelvic outlet should also be measured, *i.e.* from a line joining the posterior margins of the ischial tuberosities to the tip of the coccyx, and if this diameter measures not more than 8½ cm. a difficult delivery with serious injury to the soft parts is almost inevitable, but if the posterior sagittal diameter is increased to more than 8½ cm. a normal child can probably be delivered through the pelvis without serious damage. Patients who present irregular contractions of the pelvis, due to hip disease or some spinal malformation must be considered individually for no rules can be laid down to cover these cases, and all that can be said is that if, after a careful palpation of the pelvis under ether, definite doubt exists as to the ability of the head to pass the pelvis, a primary abdominal delivery is advisable.

Another definite indication for the performance of Cesarean section is overdevelopment of the child, and this is where many operators of today err in their choice of operation. It is not at all uncommon to hear an obstetrician say, in defending his choice of treatment in a given case, resulting in the loss of the baby, that the pelvic measurements were normal, and that therefore he did not consider the possibility of serious trouble, but his position is not a defensible one since it is not the size of the pelvis alone that counts, but the comparison between the size of the head and the size of the pelvis, as it is equally difficult for an over large child to pass through a normal passage as for a normal child to pass through a contracted passage, and the comparison between the child and the pelvis must be carefully made in each individual case before the method of delivery is selected. So much for the pelvic indications, which are usually considered as the real indications for Cesarean section. There are, however, certain other conditions in which an abdominal delivery, though perhaps not definitely indicated, will give better results than the ordinary methods of delivery.

Patients who are in poor physical and nervous condition, who have not reacted well to the strains which have been put upon them in their ordinary life, and who, instead of improving during their pregnancy, come to labor in poor shape, should be regarded as doubtful obstetric risks. In a patient of this sort the physical strain of a prolonged labor, or the nervous effect produced by pain alone, may be sufficient to produce a prolonged period of invalidism following delivery by the ordinary methods. On the other hand, patients of this type will usually undergo an operative delivery better than they will the strain of a prolonged labor, and it is fair to offer such patients the choice of an abdominal delivery, although we may have no real fear as to the outcome of labor as regards the the life of either mother or child, simply on the basis that the patient is in no condition to undergo any severe strain when that strain can be avoided by a safe surgical procedure.

Any patient to whom the life of the child is of unusual importance may fairly be advised to have an abdominal delivery at the time of election. Elderly primiparæ who may never have another child occupy the first place in this group. When no pelvic indications are present we recognize that an abdominal delivery is unnecessary in most instances, but the life of the child is of such great importance in these cases, and the danger of serious laceration of the maternal soft parts is so great, that Cesarean section is, in my opinion, the conservative course, except when careful examination shows a distinctly small child and little or no rigidity, of the maternal soft parts. Primiparæ who have been married for several years without becoming pregnant and women who, having had repeated miscarriages have at last been brought through to term by the use of unusual precautions, may be fairly considered as belonging in this group. There is no question but that Cesarean section offers the safest method of delivery for the child, and it is important in women of this class, who may never have another child, that no avoidable risks for the child should be taken, and unless the mother declines a Cesarean operation abdominal delivery is unquestionably the safest method to employ.

Patients in whom the soft parts are unusually rigid or who present more or less atresia of the vagina, whether as the result of scar tissue from previous deliveries or from operations, will be better off for an abdominal delivery than if they are seriously lacerated as a result of pelvic delivery, and in the same class may be placed patients who have been seriously lacerated at their previous deliveries and on whom operations for repair have been performed with satisfactory results, since in these cases it is very probable that a serious laceration will attend a pelvic delivery and that the patient will probably have to be subjected to a secondary operation for repair later. It is perhaps not fair to consider this as a definite indication for Cesarean section, but it is always fair to offer the patient

the chance of being delivered by a safe method which will not entail the probability of a secondary operation afterwards.

Multiparæ who have lost one or more children in previous labors, particularly if they have been under the charge of supposedly competent practitioners, may properly be considered as offering indications for an abdominal delivery. This is particularly the case when the babies have been lost at operation following prolonged unsatisfactory labors, in which the uterus has acted badly and the contractions have been ineffective and irregular, suggesting the early development of a contraction ring. As a general rule, a uterus which has acted poorly in one or more labors will act badly in subsequent labors and the safest course for both patients in cases of this nature is a primary Cesarean section at the time of election, even though no definite pelvic indication can be made out.

Pelvic operations, particularly operations on the uterus, as for instance an attempted suspension which has resulted in a fixation, not infrequently causes serious trouble in subsequent labors and every patient who has had such an operation should be carefully examined during the latter part of pregnancy. If the cervix is found in its normal position and within easy reach there is little chance that the previous operation will cause any marked dystocia, but if the cervix has been drawn up toward the promontory of the sacrum during the development of the uterus and is only to be reached with difficulty, if at all, there is every reason to believe that a pelvic delivery will prove either impossible or extremely difficult, and a primary abdominal delivery can be properly undertaken in the interests of both mother and child. In case the uterine operation has been a myomectomy the possibility of uterine rupture during labor must always be considered, and if the extent of the operation is known an intelligent choice can be made, otherwise the obstetrician must consider the probabilities and act accordingly.

Tumors which obstruct the pelvis may also furnish an indication for abdominal delivery, and the probable necessity for operation should be known before the onset of labor. Cancer of the cervix always causes bleeding during pregnancy, and the cause of bleeding during the latter part of pregnancy should always be carefully investigated and the diagnosis made. If the cancer definitely obstructs the vagina an abdominal delivery is indicated in the interests of both patients. If the cancer is in the early stages and a radical operation is possible an abdominal delivery should be performed as soon as the diagnosis is made, followed by a complete hysterectomy irrespective of the period of pregnancy. If the cancer is inoperable the choice of treatment is open to doubt. If a portion only of the cervix is involved and it is considered that the remainder will dilate properly so that a child can be delivered through the pelvis without subjecting the mother to undue risk from hemorrhage or sloughing a pelvic delivery is allowable, but it must be remembered that in these cases the child is the important patient, since the mother's condition is hopeless, and that if any doubt as to the possibility of a safe delivery through the pelvis exists, an abdominal delivery is indicated for the sake of the child, and to a certain degree for the sake of the mother, on account of the danger of serious bleeding, or of absorption following the sloughing of the cancerous tissue, events which are almost sure to follow the dragging of a child through the diseased cervix, thus tending to shorten the mother's life.

An ovarian tumor blocking the pelvis at the time of labor is a definite indication for an abdominal delivery, but an ovarian tumor of any size should have been discovered and removed during the pregnancy but if it is not discovered until after the patient is in labor it should if possible, be raised out of the pelvis by taxis and the patient allowed to deliver herself. If, however, it is impossible to raise the tumor an abdominal section should be performed and the tumor removed. Operators differ as to the advisability of performing a Cesarean section at this time or allowing a patient to go on in labor and deliver herself, but my own preference is for the performance of Cesarean section, since I believe that the continuance of labor is inadvisable under these conditions.

Fibroid tumors of the uterus may or may not furnish indications for an abdominal delivery. A single fibroid tumor situated in the upper portion of the uterus will seldom cause trouble during labor unless by rendering the uterine contractions irregular and feeble. Multiple fibroid tumors of the fundus of the uterus, if of any size, are almost sure to make labor unsatisfactory, and the safest method of delivery will not infrequently be a Cesarean section followed by an hysterectomy. Fibroids of the lower uterine segment not infrequently block the pelvis and render delivery by the ordinary methods impossible. It must not be forgotten, however, that fibroid tumors usually undergo more or less softening during labor, and sometimes a tumor which seems to offer an insuperable obstacle to delivery will be drawn up out of the pelvis under the influence of the uterine contractions. For this to happen, however, a strong active labor is necessary. It seems fair in these cases to allow the patient to go into labor for a few hours, observing her carefully to ascertain what effect the labor is having on the fibroid. If labor is unsatisfactory an abdominal delivery followed by hysterectomy or a myomectomy should be performed. Any other tumor, whatever its nature or origin, which so blocks the pelvis as to interfere with the passage of the child, furnishes definite indications for abdominal delivery.

Patients with valvular heart disease, particu-

larly mitral stenosis, not infrequently will be more safely delivered by Cesarean section than if allowed to go into labor. This is particularly true of primiparæ, whose soft parts are rigid, since the strain of labor on the seriously diseased heart is apt to be followed by a severe and perhaps fatal collapse, and in a patient in whom labor promises to be fairly difficult this risk should not be run since Cesarean section offers a much safer method of delivery. In multiparæ, in whom the soft parts are relaxed and easily dilatable, abdominal delivery will very seldom be necessary and need not be considered but in primiparæ it should receive careful consideration. Much depends on the way the heart has acted during pregnancy, although my own personal belief is that a labor of even moderate severity, although it may not kill the patient, may leave her a semi-invalid for the rest of her life, and that her interests are often best conserved by an abdominal delivery.

A complete placenta previa close to term with mother and child in good condition will occasionally furnish an indication for an abdominal delivery. If the cervix is long, rigid and not taken up, a condition sometimes seen in primiparæ, or if there is a marked pelvic contraction, abdominal delivery is indicated. If, however, the cervix is soft and easily dilatable, or if the child is markedly premature, pelvic delivery is the best method, particularly if the patient has lost much blood.

Eclampsia is often cited as an indication for an abdominal Cesarean section, but to my mind, except in the presence of a pelvic indication or excessive edema of the vulva, an abdominal delivery is unwise. The results of abdominal Cesarean section for eclampsia have given approximately a 50 per cent. mortality, which is too high to render the operation advisable, since the mortality by other means of delivery varies from 10 to 25 per cent.

Patients who have had one Cesarean section are most safely delivered by Cesarean section in subsequent pregnancies, for although the indication for operation may have been removed at the first operation this is not usually the case, and the uterine scar occasionally ruptures if subjected to the strain of labor.

HYSTERECTOMY FOLLOWING CESAREAN SECTION.

The removal of the uterus following Cesarean section becomes advisable under certain conditions and adds considerably to the risk of operation. It is, therefore, not an operation to be lightly undertaken, and if possible without adding to the risk of the patient, the hysterectomy should be deferred to a subsequent time. In certain conditions, however, it is a necessary operation. If Cesarean section becomes necessary on a patient with a uterus already infected, —because delivery by other means is impossible,—the uterus should always be removed, because the suturing of a septic uterus and its replacement in the abdominal cavity is almost sure to result in a septic peritonitis and death. Under these conditions the mortality of operation will be high, but it will be much lower than if the uterus is closed and replaced in the abdomen. In rare cases uncontrollable hemorrhage following Cesarean section may necessitate an hysterectomy but in most cases it will be possible to control the hemorrhage by other means, such as compression or even ligation of the uterine arteries, and the removal of the uterus will not be necessary. Multiple fibroid tumors of the uterus may necessitate an hysterectomy, although this will seldom be necessary. In most cases the patient's interests will be best conserved if the uterus is sutured and restored to the abdominal cavity, to be removed at a subsequent date after the involution of both the uterus and tumors have taken place, and the risks of operation are materially less than if the operation is performed at the time of the Cesarean section.

PUBIOTOMY.

The status of pubiotomy in obstetrics is as yet undetermined. Comparatively few operators will be found who, at the present time, prefer to perform a pubiotomy as a primary operation on an uninfected case in preference to a Cesarean section. Some operators go so far as to decline a pubiotomy in any case, preferring even a craniotomy on a living child to the risks attendant on pubiotomy. Pubiotomy, although a great improvement over the older operation of symphysiotomy is not an operation without risk, and at least one patient has died of hemorrhage at operation, while a considerable number have been more or less seriously invalided. Serious infection of the pelvis originating in the pubiotomy wound has occurred in some cases. Extensive injury of the bladder and non-union of the pelvic girdle have also been seen. On the other hand, in the hands of its advocates the results of pubiotomy seem to be satisfactory at the present time. It is certainly a safer operation from the standpoint of the maternal life than a Cesarean section when the conditions laid down in the early part of this paper cannot be fulfilled, particularly when a suspicion of sepsis is present or the patient has been in labor for a long time. Its field of usefulness is, however, a somewhat narrow one, for it cannot be properly undertaken when the true conjugate diameter is less than 7½ cm. and the child is of average size, because the spreading of the pelvis to a degree sufficient to allow the fetal head to pass in markedly contracted pelves may result in permanent disability of the patient, owing to injury to the sacro-iliac joints. It is certainly, therefore, not a substitute for Cesarean section when the absolute indication is present.

I believe that it has a legitimate place in obstetrics, and I should define the indications for its performance as follows: When a patient has been in labor for some time with a pelvic contraction of not less than 7½ cm. and the child

is alive and vigorous, pubiotomy is unquestionably the safest operation at our command for both mother and child, although rather more dangerous to the mother alone than a craniotomy. The risk to the maternal life is less than if a Cesarean has been performed under similar conditions and the child is given a chance for its life, the only alternative operations being Cesarean section on the one hand and craniotomy on the living child on the other. Certain operators prefer Cesarean section followed by removal of the uterus, feeling that pubiotomy has no place in obstetrics, but I believe that under the conditions defined pubiotomy is a legitimate operation, and in the majority of cases the end results will be satisfactory, although as a primary operation at the time of election it is my belief that as compared with it Cesarean section has every advantage and no disadvantages.

THE SALVARSAN-CALOMEL TREATMENT OF SYPHILIS.*

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THE treatment of syphilis in all its phases is undoubtedly one of the most difficult problems that we have to face. Salvarsan has done much to lighten the task of the practitioner; but, on the other hand, the therapeutic possibilities which this drug brings into medicine have added to the burden of responsibility which rests upon the physician who undertakes the treatment of syphilis today. A proper combination of salvarsan and mercury, applied intelligently and in time, will cure every case of syphilis; but the cure requires a great measure of care and patience for its accomplishment. Frequently two or more mercury treatments lead to the disappearance of clinical symptoms; the disease being apparently eradicated treatment is discontinued. In the great majority of such cases the disease is not cured, it has simply taken the latent form, which is all the more serious because there is no danger signal.

Another class of cases is characterized by frequent relapses during the secondary stage. But these relapses furnish a better clue to treatment, and it is in this class of cases, therefore, that an oft repeated and thorough mercury treatment extending over a period of years has led to permanent cures in the past. It is quite certain that one treatment with mercury has never cured syphilis. The medical world has learned its lesson through sad experience and physicians know only too well that the disappearance of clinical symptoms gives no guarantee that the patient is to be spared those most distressing of sicknesses, the tertiary, meta-, and para-syphilitic conditions. The introduction of salvarsan has brought to light an appalling number of just such cases. These unfortunates had well-nigh resigned themselves to their fate and many of them had ceased to be under medical care when the new hope of salvarsan led them again to seek the physician's help.

Few of these uncured cases escape their doom; syphilis is not always given due credit for the part it plays as the primary factor in many sicknesses which lead to death and which involve each and all of the vital organs, and it is this great tendency of syphilis to develop its tenacious latent form which medicine must combat with every means at hand.

Apart from the certainty that genital syphilis with its hereditary and late manifestations is increasing, we must face the fact that there is also an appalling increase of extra genital infection. Fournier, Neisser, Lesser, Scheuer, Bulkeley and others have collected over 30,000 cases of syphilis transmitted through agencies entirely external to venereal contact. As a result of their studies these authors urgently recommended an intermittent intensive treatment of early syphilis with mercury in the hope thereby to lessen the opportunity for promiscuous infection.

There is, however, only one form of mercurial treatment of syphilis that will accomplish this purpose with any degree of certainty, and that is the intramuscular application of the various insoluble compounds of mercury, such, for example, as calomel and oleum cinereum (blue ointment diluted with olive oil). By using these drugs intermittently and intensively, the German Naval Medical Service was enabled to obtain in many cases a permanently negative Wassermann reaction which remained negative after the provocatory salvarsan test (see below).

The following facts concerning the chronic intermittent treatment with mercury were developed in the German navy:[1]

1. It is much more difficult to obtain a permanently negative SR (serum reaction) than to effect a seemingly permanent clinical result.
2. If the treatment is discontinued at an early stage the SR becomes positive again.
3. The rapidity of the return to + SR depends on the quality of earlier treatments and on the duration of the disease; the more inefficient the earlier treatments, the quicker the return of + SR.
4. If all early cases are subjected to an equally intensive intermittent treatment, the clinical peculiarities of individual cases (relapses, malignancy) are entirely eliminated. This is also true of the intensive treatment of the early primary disease, since by means of such "preventative treatment" it was possible to abort the disease in a considerable number of cases. These abortive cases, treated four years ago, show to date an entire absence of clinical symptoms together with permanently — SR.

The abortive measures are not successful, however, unless the intramuscular treatment with calomel is carried out to an intensive degree. This is shown by the cases in which the abortive treatment was attempted with inunc-

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tion and salicylate of mercury. Such treatment is much too weak ever to effect abortion of the disease. The cases in which the abortive treatment was unsuccessful furthermore show a great tendency to relapses unless they are subjected at an early date to the intensive chronic intermittent treatment with calomel. The less efficient the first treatment of these cases is, the more difficult it is to effect a permanently—SR.

The superiority of the calomel treatment over the treatment chiefly by inunction is shown by the results obtained in the German navy. At the Naval Hospital in Kiel the treatment in use during the year 1908-1909 was intensive inunction (144 grams) followed by three intramuscular injections of 60 milligrams of calomel each. The results of this treatment were the following in 150 cases:

SR REMAINED +	PER CENT.
Primary cases	41
Fresh secondary cases	60
Relapses secondary cases	78

During the year 1909-1910 the treatment employed consisted of inunction (144 grams) followed by 8 intramuscular injections of calomel of 50 milligrams each, later, of 15 intramuscular injections of calomel in doses gradually diminishing from 70 milligrams to 40, and followed by 2 intramuscular injections of ol. cinereum (100 milligrams each). The results for this year (1909-10) in 130 cases were as follows:

SR REMAINED +	PER CENT.
Primary cases	24
Fresh secondary cases	8.7
Relapses secondary cases	43

During the period of intensive intramuscular treatment with calomel the SR remained + in only 8.7 per cent. of the fresh secondary cases, whereas with the treatment chiefly by inunction the percentage of the same class of cases in which SR remained + was 60.

According to Gennerich,[2] chief of staff at the naval hospital in Kiel, the mercurial treatment of syphilis is productive of three classes of cases:

1. *Cures.* With a carefully planned and a sufficiently intensive calomel and ol. cinereum treatment it is possible to abort cases in the primary stages of syphilis. To effect such abortion 3 intensive calomel treatments were found to be necessary. In the secondary stage from 4 to 6 such treatments are required to produce a permanently negative SR. There are no relapses in any of the cases after treatments of this kind, but it takes from a year to a year and a half to effect the cure in secondary cases.

2. *Relapsing Cases.* Less efficient treatment develops two types of relapsing syphilis. The first type is characterized by a long continued tendency to a return of the clinical symptoms, the early reappearance of which betrays the form which the disease has taken. This type is sometimes seen as a consequence of unsuccessful preventative treatment. It appears that the infection becomes more virulent (greater tendency to relapses) if the complete saturation of the system with spirochetes is not prevented at an early date. Cases of syphilis in the eruptive stage which are not intensively treated tend to develop a more refractory and malignant type; and it is this class of cases that furnishes the notorious neuro-recidives. The second type of cases develops in consequence of sufficiently frequent but too ineffective treatments. Such frequent light treatments seem to lead to an increased tendency to relapses. The cases of this type are usually those in which weak doses of bichloride or other soluble salts of mercury have been employed. The effect of this weak treatment seems to be actually to stimulate the development of the spirochetes. On the other hand, there is no doubt that certain cases bear the stamp of malignancy when they are first seen by the physician. These are the cases in which either an absence or a light character of the eruption and other secondary signs has led the patient to defer medical consultation for months.

3. *Latent Cases.* The third class of cases comprises those cases which remain latent after one treatment or several treatments. During the youth of the patient there is no return of the clinical symptoms but the SR remains +. The syphilitic infection in these cases gradually diminishes owing to the normal processes of repair and absorption in the system; the disease is not entirely overcome, however, and the organisms which remain establish themselves in certain favorite sites where they produce in time gummata, sclerosing changes or metasyphilitical conditions. There is, however, also a class of untreated cases which are latent from the start and which are not recognized until the tertiary symptoms appear.

The civilized nations of Europe exhibit an entirely different form of the disease from that shown by the races near to nature among whom syphilis has not been known very long. These races exhibit the disease in its most acute manifestations with a great tendency to relapses but with no tendency to metasyphilis. On the other hand, European syphilis, on account of its frequent passage through the human system and its frequent transmission as an older infection, has lost to a great extent the tendency to frequent secondary relapses; and if it is not treated intensively it will acquire from the start a latent character with the tendency to localization, which leads to tertiary syphilis and metasyphilis. The cases of this class are coming to be recognized more and more. Many of the old cases show a—SR, which is accounted for by the localization of the syphilitic process in circumscribed foci and the absence of infective material from the blood.

The use of salvarsan makes it easier to overcome syphilitic infection; but with salvarsan too the treatment must be most intensive. All that has been said of the calomel treatment is also true of the treatment with salvarsan; the in-

sufficient salvarsan treatment is fully as dangerous as insufficient mercurial treatment, possibly it is even more dangerous. The following case is a good illustration:

A young man acquired his initial sclerosis last autumn. On account of the slightness of the secondary symptoms he did not consult a physician until four weeks ago. The physician whom he saw gave him, as the only treatment, one intravenous injection of salvarsan. Four days ago the patient became stone deaf. It was one of the so-called neuro-recidives which sometimes follow inefficient salvarsan treatment.

Whether or not salvarsan alone is capable of curing syphilis is an open question. Its action is undoubtedly much more powerful and rapid than that of calomel, but perhaps it is not as enduring as calomel action. When an early and effective calomel treatment is used less salvarsan is necessary. In any event, a proper combination of the two drugs makes it possible to cure syphilis in one-sixth the time required when calomel alone is used; and the treatment is much milder. The intensive, chronic intermittent treatment with calomel and ol. cinereum could hardly be carried out successfully with the average American patient; it is difficult enough to convince even intelligent patients of the necessity of the comparatively short intensive combination treatment. The fact that a large number of practitioners are still giving salvarsan in a sort of desultory way, say one injection and then another in two months, with a little mercury by mouth from time to time, does not help to teach the laity the seriousness of the situation. It is to men like Gennerich and Wechselman, who now number their salvarsan-calomel cases by the tens of thousands, that we must look for accurate information in treatment. The lesson they teach is that we must continue an intensive treatment until we obtain a negative SR. The following case will serve to illustrate the sort of thing that is almost the rule and not the exception with us in America today:

In the course of an investigation of a possible spread of extra-genital syphilis among the employees of a large industrial company I requested that the original source of infection, a young fellow of 21 be sent to my office. When he came he was considerably upset because he had been laid off from work and had been ordered to see me. He told me that he had seen a specialist when he acquired his chancre last January; that the physician in question had examined his blood and finding it positive for syphilis had given him, last February, an intravenous injection of salvarsan. Then he had taken a certain amount of red iodide by mouth and *two months later*, towards the end of April, he had received another intravenous treatment. There had been no examination of the blood since the first one. The patient informed me that he was cured and that it was not necessary for him to have further treatment. I saw him about the first of June and I told him that his SR was almost sure to be still positive and that he would probably require more treatment. Needless to say, the SR was still positive. The patient was fast developing a case of refractory latent syphilis.

In secondary cases I usually begin with a calomel treatment of 8 intramuscular injections, 2 of 70, 2 of 60, 2 of 50 and 2 of 40 mm. If the patient is afflicted with serious secondary symptoms such, for instance, as laryngeal syphilis with an intense and constant cough and almost complete loss of voice, I immediately give him two or three intravenous injections of salvarsan, three or four days apart, before beginning the calomel treatment. The injections of calomel are given every four to five days, and if the patient's condition allows he receives two more injections of 40 milligrams each when the first 8 are complete. It is not to be denied that the calomel makes the patients feel considerably prostrated in most cases, although some of them bear up remarkably well under the injections. During the calomel treatment the patient must take the very best care of himself; he should stop work if possible, he must go to bed immediately after each injection (I give them in the afternoon) and he must refrain from the use of alcohol for an indefinite period. It is interesting to note how quickly the intravenous applications of salvarsan, which follow the calomel after the lapse of a few days, bring the patient back to a state of comparative well-being. The injections of salvarsan are made, as stated above, in intervals of from three to four days; and five or six injections are given in all. In ordinary cases men receive from 0.5 to 0.6 gram salvarsan at each treatment, while women are given somewhat less. The calomel must be given as a fine suspension in oil of sesame.

Twenty-five cases of syphilis in all stages which I have treated intensively with salvarsan and calomel all show absence of clinical symptoms and a —SR to date.

The most important cases from a social and hygienic point of view are the cases in which abortive treatment is possible. In these primary cases it is best to begin with three intravenous injections of salvarsan three days apart, and to follow them immediately by five or six intramuscular injections of calomel. During the course of the calomel treatment the patient receives two or three more injections of salvarsan. Each case must be treated on its own indications, but unless the patient is unusually sensitive to mercury it will be possible to complete the entire treatment in from four to five weeks.

Strict individualization is necessary in the treatment of all cases. Each case must be treated intensively until a — SR is obtained. Blood examinations should be made every 14 days. If the SR becomes negative quickly the scheme of treatment should nevertheless be carried to the end. The clinical course of the case must be carefully observed, particular attention being paid to the behavior of the glands.

I think every effort should be made to teach the laity the possibility of aborting the disease in its earliest stages. Neisser, Weintraud, Ge-

ronne, Duhot, Stern, Milian, Berger and Gennerich all report cases of successful abortive treatment. Not only is it possible to cure primary syphilis with calomel and salvarsan in one month, the cure has even been accomplished by a single intravenous application of salvarsan. But the cases which have been cured by one injection were seen by the physician at a very early date, before the general enlargement of the glands and before the appearance of the positive SR, with the presence of spirochetes in the lesion, however, to insure the diagnosis. In these cases the spirochetes disappeared, there were never any secondary symptoms and the SR was negative, remaining negative after the provocatory salvarsan test. A further proof of cure in these cases may be found in the fact that some of them became reinfected with primary chancres after exposure.

The provocatory salvarsan injection furnishes a reliable diagnostic test for latent or uncured syphilis. The test was discovered by Gennerich in October, 1910, a little later and independently of Gennerich,[3] by Millan.[4] Clinical observations with the aid of this test now covering a period of over a year and a half show the following facts:

1. All abortive cases of syphilis treated by the intensive method, which are upward of 4 weeks old and in which the SR was negative before the treatment, show a transitory positive SR. The duration of + SR is directly proportional to the length of time which has elapsed since infection.

2. All cases of secondary syphilis with negative SR show + SR after an intravenous injection of salvarsan. The duration of + SR in these cases is directly proportional to the intensity of the syphilitic process and inversely proportional to the degree of efficiency of previous treatment. If the treatment was poor, the positive phase of the SR may last two to three weeks and even longer. Old tertiary cases, especially cases of arterial syphilis, usually show a + SR lasting 24 hours only and as a rule the positive reaction appears on the second day. Specific treatment of any kind immediately preceding the provocatory salvarsan injection may prevent the appearance of a + SR; but in early secondary cases it has been obtained even when a long continued calomel cure had gone before the making of the test. In testing older cases care must be taken to avoid treatment of the patient to be tested with either mercury or salvarsan for a period of six months or a year previous to the test. The more efficient the last treatment, the longer should be the lapse of time before the test is applied.

3. In latent cases also a transitory + SR appears after the provocatory salvarsan test. Occasionally the positive phase of the SR endures for some time, but usually it lasts only a day or two.

During the first years of syphilis the provocatory salvarsan test is reliable, according to Gennerich, in 100 per cent. of the cases. Among the older cases, in which the syphilitic process is often very circumscribed, there are probably quite a number which will not betray themselves by a + SR even after the most careful provocatory test. For the recognition of these cases we are fortunate in now having the "lutein" test of Noguchi.[5]

Noguchi has succeeded in evolving a test which, similarly to the cutaneous test for tuberculosis, will produce an anphylactic cutaneous reaction in cases of syphilis. Noguchi prepared his material for the test by grinding up pure agar cultures of the spirochete pallida with pure cultures of the same organism in bouillon. He then heated the mixture to 60° C. and added ½ per cent. carbolic acid for the purpose of sterilization. After he had determined that his material was sterile he applied it to the scarified skin of patients with syphilis.

Noguchi found that his lutein test was practically always positive in tertiary syphilis, while secondary cases rarely gave the reaction.

It is evident, therefore, that the physician, guided by the Wassermann test for primary and secondary syphilis, the provocatory salvarsan-Wassermann test for late secondary and latent syphilis and the lutein reaction for tertiary syphilis, has it in his power to control the disease and to prevent the development of meta- and parasyphilitic conditions.

Much has been written of late concerning the so-called neuro-recidives which have been seen after salvarsan injections. A number of writers, following the lead of Finger, have endeavored to attribute these cases of sudden blindness, deafness or other nervous disturbance to arsenical poisoning from salvarsan. That these accidents cannot be due to salvarsan or any of its decomposition products, such as arsenious acid, is shown by the following facts:

1. Neuro-recidives are unknown in the modern treatment of yaws, trpanosomiasis, relapsing fever and other diseases (except syphilis) which are now uniformly treated with salvarsan.

2. Neuro-recidives are usually promptly cured by further salvarsan treatment.

3. Neuro-recidives are never seen in cases of syphilis which are treated intensively with salvarsan from the start.

4. The symptoms apparent in the neuro-cidives are not those of arsenical poisoning. In cases treated with salvarsan which have died, no arsenic could be found in the brain and spinal cord, the organs which are affected in the neuro-recidives.

As a matter of fact, salvarsan, with the sole exception of neo-salvarsan, is the most inocuous compound of arsenic known. In the form of salvarsan seven times as much arsenic may be introduced into the system without producing intoxication as could be given in the form of potassium arsenite (Fowler's solution).[6] Salvarsan seems to be truly "parasitotropic" with-

out having, to any marked degree, a tendency to cause degenerative changes in the organs.

When salvarsan is given properly and with due knowledge of its properties and when it is given in sufficient quantity to avoid neurorecidives, it is not a dangerous drug. Ehrlich warns us not to give salvarsan in cases with an easily excited neurocaridac system, in cases with arterial degeneration or aneurism, in cases with a history of cerebral hemorrhage, in diabetes, in nephritis, in cases of gastric or duodenal ulcer and in old people. I feel that this warning must not be taken too literally since, to date, many seemingly hopeless cases included in the list have promptly recovered with salvarsan medication. It behooves the physician, however, to be very careful in his treatment of such cases. When any of the conditions enumerated above are present it is best to give small doses of salvarsan at first. If these are well borne the physician may proceed gradually to higher dosage. Doses of 0.1 to 0.2 gram are safe in practically all cases.

Salvarsan is best given intravenously. The intramuscular method of application which was first employed has many serious drawbacks. It is very painful and prostrating to the patient and the concentrated alkaline solution which is commonly used for intramuscular application often produces distressing sloughs. The conditions for absorption are uncertain; in unfavorable cases some of the salvarsan may be retained in the place of application until it decomposes and arsenical poisoning may result. In the intramuscular method of application, moreover, the dosage is very inaccurate at best. But perhaps the most important objection to the intramuscular method is found in the fact that it is quite impossible with this method to introduce a sufficient amount of salvarsan into the circulation at one time even distantly to approximate to Ehrlich's object of producing complete sterilization by flooding the system at once with salvarsan. The intravenous method, as I stated a year ago,[7] is, therefore, the only rational method of application for salvarsan.

Since reporting my observations tending to show that salvarsan may be retained in the system for a considerable length of time even when it is given intravenously,[7] I have been able repeatedly to detect arsenic in the urine several months after its intravenous application. Fischer and Jessionek go so far as to say that they found arsenic in the urine of a patient 7½ months after his last intravenous infusion.

For the intravenous injection it is best to use a very slightly alkaline solution. The acid solution is undoubtedly more effective but it is also much more toxic, according to Hering[8] ten times more so, than the alkaline solution.

The intravenous application of salvarsan should be followed by at least eight to ten hours' rest in bed. On this account I usually give my infusions at six o'clock in the evening, on the empty stomach, and keep the patient in bed till the next morning. The patient's comfort is insured by a 0.5 gram dose of veronal sodium, which he takes soon after the injection. This dose may be repeated once and even twice during the night if necessary.

Out-patient treatment by intravenous infusion of salvarsan is decidedly unadvisable. Treupel and Levi[9] saw some severe collapses following out-patient intravenous treatment and they have consequently abandoned it.

The best form of apparatus to use for the infusion is one provided with a needle and canula. The canula is passed through the needle and it projects beyond the point, thus protecting the wall of the vein from puncture. It is this secondary puncturing of the vessel wall which is the usual cause of failure in intravenous technic. If the needle has been properly inserted into the vein the use of the canula makes it impossible for the infusion to fail. It is best, furthermore, to allow the salvarsan solution to flow slowly into the vein by gravity, rather than to force it into the circulation quickly and under considerable pressure. An apparatus of my design for the intravenous application of salvarsan by gravity which is provided with a needle and canula, is in use in the wards of the Massachusetts General Hospital.*

Certain difficulties which have been associated with the preparation and application of salvarsan, up to the present, will be eliminated by the more general use of neo-salvarsan. This compound which bears number 914 in Ehrlich's remarkable series is a formaldehyde-sodium-sulfoxylate of dioxy-di-amido arseno-benzol or salvarsan. Neo-salvarsan is a sodium salt which is easily soluble in water with a neutral reaction, therefore its preparation for use requires no skill, since simple solution in water is all that is necessary. By its use even the slight reactions sometimes seen after salvarsan will be avoided. Neo-salvarsan is somewhat less toxic than salvarsan and it seems to act a little more promptly. It may be given intravenously every second day in doses up to 1½ grams. Six grams of neo-salvarsan are equivalent to 4 grams of salvarsan.

* The apparatus is manufactured by the Randall-Faichney Co., Boston.

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THE BACTERIOLOGIC DIAGNOSIS, INTUBATION, AND ANTITOXIN TREATMENT OF DIPHTHERIA.*

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THE question of bacteriologic diagnosis is one of considerable complexity and interest, particularly in the diagnosis of diphtheria. We know

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that the diphtheria bacillus varies from the short to the long variety; according to the admixture of other bacteria, the age of the culture and individual characteristics from an evenly stained short bacillus to the typical bipolar stained longer bacillus. We have also organisms found in the throat, nose, and other parts of the body, which have such close similarity to B. Diphtheriæ that they cannot be distinguished from it by morphology. These organisms undoubtedly belong to different groups, and the species in one group differ from the others. Sharp demarkation of these groups or individuals is not at present possible.

In the diphtheroid group, Hoffman's bacillus and the Xerosis bacillus are the most frequently found in routine cultural diagnosis.

Hoffman's bacillus is easily distinguished by cultural tests, by its failure to ferment any sugar while the diphtheria bacillus ferments certain of them freely. In morphology, the Hoffman's organism is shorter, more evenly stained and does not form bipolar bodies. Some bacteriologists report as positive any culture containing this organism or others of the diphtheria group and this leads to considerable clinical error and uncertainty. Most of these organisms are non-virulent for animals. In the instances where the diphtheroid organisms are virulent, there is lacking, so far as I have known, the characteristic local edema, fibrinous infiltration and the adrenal hemorrhage produced by virulent Klebs-Loeffler organisms. Of course, the use of antitoxin, which will have no control of the diphtheroid's virulence but will entirely prevent the true diphtheria toxic effects, will settle any doubt.

Bacillus Xerosis causes greater difficulty in routine work. It may have the same morphology and staining as the K. L. bacillus. It is found frequently in the aural discharge, in the nose and less frequently in the throat. It is almost a constant inhabitant of the conjunctival sack. It is often possible with experience to recognize this bacillus from diphtheria in routine examinations but at other times, it is indistinguishable. Sugars serve to differentiate: Klebs-Loeffler splits dextrine and not saccharose while Xerosis splits saccharose and not dextrine. Xerosis is non-virulent for animals usually. Various organisms of this group do not come into any of these classes by sugar splitting but their position is not determined.

There are organisms which belong to entirely different groups but are sometimes confused in routine diagnosis. I have known two cases where the B. Pyocyaneus was diagnosed as diphtheria. They may look something alike, but one is Gram-positive and one Gram-negative.

So we have a large number of organisms that approach the diphtheria bacillus very closely particularly in morphology. This has resulted in so much confusion that some physicians say that the diagonsis of diptheria cannot be made from culture. Some insist on the virulence test, killing the guinea-pig with characteristic effects which are prevented by antitoxin. Strictly speaking that is the only way of proving the diphtheria bacillus and today I do not believe any physician would report an unusual form of diphtheria simply on the morphology. A few years ago, this would not have been thought of.

The relationship of the diphtheria-like organisms is not settled. Some hold that they all are variously attenuated Klebs-Loeffler bacilli. There has been almost universal failure, however, to alter virulence so as to convert non-virulent to virulent and vice versa. Studies in the distribution of the diphtheroids in relation to outbreaks of diphtheria, as in contacts, etc., by Graham-Smith have failed to show their relation to the disease, although this has been held by others. We are compelled to group these organisms without denying or affirming their specificity, just as in the streptococcus and colon groups.

Practically, morphology is of extreme value in clinical work, and the purely clinical diagnosis is much more accurate through bacteriologic studies. Personally, I am very strongly inclined to the belief that a very large per cent. of patients having diphtheria-like organisms morphologically in false membranes have true diphtheria. We depend on this almost absolutely. Such organisms practically invariably prove virulent. In the aural discharge and in the nose, there is more chance of error.

Not a few errors result from poor technic in taking the culture, failure to accurately apply the swab to the inflamed area, to throughly inoculate by sufficient rubbing and to inoculate the serum slant. The tube may be sent in for diagnosis so dry that no accuracy can depend on the test. Recently, a patient in this hospital had two negative cultures by two physicians from a severe diphtheritic sore throat, from which accurately taken cultures showed typical K. L. Too short an incubation of the tube will lead to error.

Intubation for diphtheria has of course an indisputable value. How early should we resort to the operation or how long should the patient be allowed to go in hope that he may escape the operation? It is a point we have to decide in the hospital very seldom, I am sorry to say, as in the majority of cases the patient is rushed in to get the tube in order to prevent strangulation. In some instances they cease to breathe before entering, although some revive afterwards through artificial respiration. In those not requiring immediate intubation, a large per cent. escape operation entirely. The general physician, who sees the case in the early stages more often, has to decide this point.

We have to consider the dangers from operation itself, and the dangers from the laryngeal stenosis. The dangers of laryngeal obstruction, aside from strangulation and death from asphyxia, are very largely those of pneumonia. The membrane extends into the bronchi and at

times into the lung alveoli themselves, but a large per cent. of fatal laryngeal cases die from pneumonia. Dr. Park of the Willard Parker Hospital in visiting here last week said that almost 90% of the laryngeal cases there had pneumonia on admission. A certain number of laryngeal cases have severe faucial or nasal diphtheria and die from diphtheria toxemia just as they would if they had no laryngeal involvement. It is striking that in no patient with laryngeal diphtheria without involvement of the throat or nose have I ever seen death from diphtheria poison or any of its specific effects as paralysis or the cardiac degeneration.

Dr. McCollom investigated 685 deaths out of several thousand cases of intubation, and only 414 were deaths really referred to laryngeal obstruction. It was obvious that the others would have occurred whether the laryngeal obstruction were present or not. Of the 414 cases, 76.8% died from pneumonia, 20% from extension of the membrane down into the lungs and 4 or less than 1% died from plugging of the tube.

The factors inducing pneumonia are complex. It is obvious that pneumonia is not to a great extent the effect of diphtheria toxemia, as in throat cases with severe toxemia it is rare, and in laryngeal cases where post-diphtheritic paralysis and other toxic effects are extremely rare, it is common.

The differences between these two types are (1) the lower bacterial invasion of the respiratory tract and (2) the obstruction to breathing, in the laryngeal form.

The bacterial invasion deeper in the respiratory tree plays a part but to my mind an inferior one. In severe obstruction pneumonia is far more common than in the milder and still the extent of the process does not necessarily coincide with the degree of obstruction.

It is the mechanical obstruction therefore that plays the most important role, I believe, in the causation of this complication. It does this in several ways:

1. Excessive muscular fatigue through the repeated forcible action of the respiratory muscles in some cases for rather long periods. Such patients on securing relief promptly drop off to sleep.

2. Loss of sleep because of dyspnea.

3. Poor aeration of the lungs, low oxygen content of blood and high CO_2 content.

4. Water starvation, as the respiratory demand will not yield to desire to swallow. The patient may reach out for a glass of water with avidity, take it to its lips and drop it without a swallow.

5. Food starvation for the same reason.

6. Accumulation of mucoid and purulent secretion with bacteria below the stricture. When a patient is intubed after prolonged obstruction with the dry unproductive cough, there is always an expectoration of a considerable amount of this purulent material.

All these factors produce as favorable conditions for pneumonia production as one could suggest except through actual lung trauma and injection of bacteria. Moreover there is often marked emphysema with cardiac dilation resulting from the forced difficult breathing.

Early relief from obstruction is thus seen to be of the greatest importance. It must be given to secure its greatest value before this train of unfavorable conditions is present. Restlessness, loss of sleep, inability to take nourishment, use of the accessory muscles of respiration, stridor, or marked retraction, whether cyanosis is present or not, would each be an indication for intubation. A weak child would need intubation sooner than a strong one.

Antitoxin is of tremendous value in preventing stenosis and stopping the disease after intubation. During the past 10 months of 119 consecutive cases of laryngeal diphtheria at the South Department, 47% escaped operation in spite of our belief in early intubation.

On the other hand, there are the dangers attending the operation of intubation. I think we have strong evidence that the operation itself, properly done, is of insignificant danger. Experiments with chemicals in food for postmortem study have shown that aspiration in intubation cases is of slight importance and today the elaborate methods of avoiding this danger are largely given up. The patient sits up and drinks out of a cup as any child would and pneumonia is no more common than when the catheter, or Casselberry's position was used. In fact pneumonia incidence and mortality have never been lower; 15% last year as compared with 45% to 60% in the early years with antitoxin.

In the indirect operation as done at the South Department there is certain danger of trauma. This is as much from too large a tube as from improper technic. I remember seeing a patient some time ago in a hospital where there had been seven chronic tube cases within a year; this boy was four years old and had in a twelve year tube. The learning operator is almost always clumsy about it. In almost all cases, beginners fail. I know I failed repeatedly as a beginner. If men are thrown on their own responsibility, they feel that they must get the tube in and that results often in great trauma. It is best to have a trained experienced man always at hand. No beginner should be allowed to try repeatedly on the same patient or to use force simply to be successful in his attempt. In any patient where there is evidence of more or less persistent trouble in the larynx, that case is taken from the inexperienced man in subsequent operations to avoid additional trauma.

During the past four years, there have been only four cases of chronic tubes in the South Department out of about 800 cases, and of these two have recovered and one when last seen some months ago was able to breathe through the larynx freely.

Obstruction of the tube at the time of operais not infrequent from the membrane filling it

or occluding the end of the tube. Removal of the tube may be followed by the membrane with complete or partial relief, relieved by the next intubation. When the patient continues to get any air, several intubations and extubations can be done to get relief, but if they fail or breathing is completely lost, tracheotomy is done. In many cases we have been able to put in the short tube, the French tube designed by Bayeux, which allows a space for the membrane to be coughed up into it and the tube is then removed with the membrane streaming from it.

The time of wearing the tube, *i.e.* the time before it would be extracted, varies in hospitals from 48 hours to 7 or 8 days provided it is not coughed. In the South Department no routine time is followed; each case has its own indications. Attempts to remove the tube while the obstructing membrane or edema is present are useless. When sufficient time has allowed the antitoxin to clear the local process, the tube is removed. As will be seen by this table of 103 cases, the total duration was less than 5 days in practically 90%.

Duration of intubation in series of 103 non-fatal cases:

One day	16.6%
Two days or less	18%
Three days	30%
Four days	14.5%
Five days	9.7%
Six days to seven	2.9%
Eight to ten days	0.99%
Eleven to fourteen	3.8%
Fifteen to twenty-one	1.9%

Of the fatal cases at the same period, 14 cases died before the tube was removed within four days after operation, eight patients died after recovering from the obstruction. With three exceptions they were all under five days total duration.

Of the number of operations per patient, 40% had one intubation; 43% of these were self extubed by coughing. Of these self-extubed cases, 64% were in the first two days after intubation; while of the manually extracted tubes, 75% were on the third and fourth days.

Thirty-four per cent. of this series had two operations and 77% of these were required by coughed or obstructed tubes.

Fourteen per cent. required three operations and of these 74% were required by coughed tubes.

A few cases required from four to eight operations during treatment. It is seen that almost a half of the cases are relieved by one operation and that of these requiring more than one intubation three-fourths are due to coughed tubes and only one-fourth because obstruction is present after the routine removal.

The action of antitoxin is two-fold: (1) combining toxin and thus averting its effect on the tissues, (2) stopping the production of toxin and causing the membrane and local inflammation to subside. The former is produced by chemical union with the toxin molecule according to Ehrlich; the latter mode of action is not known though it cannot be direct. It is assumed that the neutralization of the toxin allows the other defences against invaders as bacteriolysis and phagocytosis to become effective. Certainly antitoxin is not bacteriocidal but having once caused the clearing of the local process relapses are rare.

The effective time of antitoxin action is limited to a few days after toxin is produced. Free toxin does not remain in the blood, it rapidly combines with certain body tissues. For a limited time after such action, probably less than two to three days, the toxin can be split off apparently from its loose combination with the tissues because of the greater affinity of antitoxin. After this time, however, the toxin tissue combination cannot be altered by treatment.

It is imperative therefore that sufficient antitoxin should be given to neutralize the toxin completely before fatal amounts may act on the tissues. A fatal dose of poison may be absorbed in two days of the onset.

The subcutaneous method of adminstration is used as a routine though Park has shown the value of the intravenous method in securing earlier effects and smaller dose.

The variation in dosage at different hospitals and countries leads to much confusion. The principle of dosage in which all would agree is simply to accomplish the neutralization of all the toxin in the patient in the shortest possible time. Single effective dosage is therefore better than "divided" doses. The interval of dose should be the least required to show that the next dose is needed. Starting treatment early is not sufficient, unless enough is given early. It must be remembered that a small dose the first day will accomplish more than a very large one on the third day. The South Department has the name, and I think it is true, of giving larger doses of antitoxin than any other institution in the world. Following Dr. McCollom's lead we desire to give enough and no more but it is much better to give too much to many than not enough to one.

What is an overdose is a frequent question, and what is the average dose? There is no overdose in the drug sense, because antitoxin acts on the toxin and not the patient. There is always an overdose in the strict sense, because no one can regulate the dose to just a balance of neutralization of toxin. The average dose means nothing because you cannot tell that any particular case is an average case.

A few years ago, a House Officer reported a mild sore throat on rising. There was slight redness of the tonsil and pillar, no membrane. At noon because of slight increase of the edema, he was given 12,000 units of antitoxin. He felt well, no fever. Culture positive in the P.M. 12,000 more units given at night. There was slight membrane the next A.M. and the edema had increased. During the day he had 36,000

units of antitoxin, so that in 36 hours he had had 60,000 units. On the morning of the third day he had developed membrane all over the markedly swollen tonsil and palate, and there was marked edema in the neck. He was given another 36,000 units and the edema was gone and the membrane clearing on the morning of the fourth day. It seems reasonable to me that if 60,000 units given as early in the disease as it is ever possible to give allowed the disease to progress to that extent much smaller doses would have been of doubtful value. The intravenous method will accomplish more. The dosage varies here from 2000 to as high occasionally as 400,000 to 500,000 units.

No patient ever dies when antitoxin is given the first day. Of 431 cases of diphtheria among the employees at the South Department since antitoxin, no deaths have occurred from diphtheria. That ideal result in a period of 15 years is not mere luck. It is just the result that should be reached in all cases instead of the 5 to 10% mortality of those coming to the hospital. The only way this can be changed is through earlier diagnosis and earlier treatment. The first dose should be as large as the physician can decide is necessary, and intervals of 24 hours should not be allowed to elapse before the next if there is any doubt of its sufficiency. It is difficult to tell at the outset what total dose will be needed and second and third doses may be required. We intend to have no antitoxin given after 48 hours, all that is needed being given so far as possible within that interval and if possible at once.

One word in regard to ill-effects of serum treatment. So striking are the animal experiments of anaphylaxis that every medical student who attends the hospital wonders at one's temerity in giving antitoxin, and the same fear is seen in practice; do we dare to give this or that dose or do we dare to give it at all? It is a surprising peculiarity of the human mind that we fear the infinitesimal danger of serum more than the very great danger of diphtheria toxin.

Personally, I have never seen a death from serum. I have never withheld serum in any case where there was the slightest evidence that it was indicated. Dr. McCollom has stated that in over 40,000 cases at the South Department to whom serum was given, there has never been a death from its use.

The ill effects of serum treatment are:

1. Rashes.
   - *a.* Urticaria occurring usually at about the 7–10th day.
   - *b.* Erythema multiforme occurring about 12-21st day.
2. Fever, practically invariably associated with the efflorescence.
3. Angio-neurotic edema.
4. Adenopathy.
5. Arthralgia and myalgia.
6. Vomiting, chiefly associated with urticaria and edema.
7. Fainting, invariably in my experience associated with exertion while suffering with serum rash.
8. Shock, very rare and already alluded to.

There is no question that certain people do have a certain susceptibility to serum but from a standpoint of practical medicine, the danger is very slight. You might just as well not give ether. Asthmatics are supposed to be especially unsafe. Recently I saw a patient of Dr. Tobey's, a physician's wife, who had suffered from asthma for years. Dr. Tobey had recently removed polypoid tissue from the nose. During convalescence there was only one mild attack of asthma. While recuperating from the operation, she developed diphtheria. Two doses of 12,000 units were given without any unfavorable effect.

Those subject to horse asthma might not fare so well. We have seen few cases of definite asthma; only two in children. These had no ill effects of serum treatment.

Whenever there is the slightest fear beforehand that serum will prove dangerous, tests may be safely made of susceptibility by injecting an infinitesimal dose and watching for ill effects. If these are absent after a short time the regular dose may be given. If there are symptoms with the minute dose, as soon as they have passed off, a larger dose may be given in the refractory period without fear. This is being extremely cautious in actual practice and would be used only where extreme susceptibility is suspected.

THE SIGNIFICANCE OF SYMPTOMS IN PULMONARY TUBERCULOSIS.*

BY HENRY D. CHADWICK, M.D., WESTFIELD, MASS.,
AND
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As a rule physicians do not attach enough significance to the early symptoms of pulmonary tuberculosis. In a doubtful case the diagnosis is often delayed until definite physical signs appear in the lungs, or the patient is kept waiting until tubercle bacilli are found in the sputum. We all appreciate how difficult it is, occasionally, even for one giving much time to chest examinations, to find physical signs in the lungs of some patients who have had pulmonary hemorrhages, elevated temperature, or other symptoms indicating tuberculous infection. After a varied period of time many of these patients if left to their own devices develop râles in the apices and other signs of infiltration with the subsequent necrosis, which frees the tubercle bacilli.

When this occurs the patient is past the incipient stage even if the diseased area yet be small in extent. As soon as the bacilli are free the opportunity for extension is greater, and perhaps more important still is the fact that the

* Read at the annual meeting of The Massachusetts Medical Society, June 11, 1912.

viability of the bacilli is enhanced by having a point of exit which allows the discharge of its own metabolic products. These products when encapsulated in a tubercle tend automatically to hinder, or prevent, further growth or bacilli and the progress of the disease.

When we consider that tuberculous infection occurs in nearly all individuals before they are twenty years old, and but seven per cent. die from tuberculosis, we may truly state that it is one of the most curable of all infectious diseases.

But, however, when we study the cases whose natural immunity is insufficient to withstand the infecting bacilli and symptoms are produced of such severity that a diagnosis can be easily made, then we have to deal with one of the most difficult diseases to control, and one in which the mortality yet remains high.

One of the ways in which this mortality may be reduced is by persistent and alert watch for early symptoms. The symptoms to be looked upon as suspicious are loss of weight, weakness, or undue weariness, frequent or prolonged colds, cough, hemoptysis, pleurisy, increased rapidity of the pulse, and an afternoon elevation of temperature, which is sometimes only present after exertion. One, or several, of these symptoms will be present before bacilli can be found, or in fact before there is any sputum to be examined.

The presence of a cough and positive sputum are two factors which cannot be depended upon if an early diagnosis is desired, as both these signs may be absent even when there is well developed tuberculosis, with marked physical signs in the lungs.

All blood spitting which is not explained by cardiac disease, epistaxis or lobar pneumonia should be considered good evidence of pulmonary tuberculosis, unless the location of a bleeding point can be found.

To examine a patient after a hemorrhage and tell him that as no physical signs of tuberculosis can be found in the lungs, the blood must have come from the throat, is a mistaken kindness which usually leads to dire results.

The method of handling such patients should be reversed and if a careful examination of nose and throat does not reveal the source of blood, the patient should be told that the bleeding must be within the lungs, and means the beginning of pulmonary tuberculosis. Then the patient can take advantage of his good fortune, which is what an early diagnosis ought to be considered. A hemoptysis is often a "life saver," if the patient happens to consult a doctor who is honest in his statements and one who appreciates his opportunity.

A patient at such times is usually willing to drop business and follow the proper treatment. No other symptom so impresses a person with the gravity of his condition, although, as a matter of fact, it is less serious than weakness or increased rapidity of pulse, which do not attract the patient's attention.

In order to get an idea of the true value of early symptoms in individual cases of pulmonary tuberculosis we have made a careful study of the histories of two hundred cases treated at the Westfield State Sanatorium. One hundred of these cases obtained an arrest of their disease and one hundred died while under treatment or within a few months after discharge. We decided to compare these two groups of patients to see if we could determine what symptoms could be considered favorable, or unfavorable, in forecasting a prognosis or significant in diagnosis.

As the severity of reaction following a tuberculin test is an index of a patient's sensitiveness, it should follow that the immediate symptoms resulting from active tuberculous infection would indicate an individual's natural resistance, or sensitiveness, to the infecting organism. The violence of this reaction would depend upon the natural immunity of the patient and upon the virulence of the infecting strain of bacilli. Other things being equal, early symptoms should indicate the ratio between these two factors.

The onset of these two hundred cases was as follows:

TABLE 1.

Duration of Disease of 100 *Cases That Died.*

	4 mos.	4 to 8 mos.	8 to 12 mos.	Total 1 yr.	12 to 16 mos.	16 to 20 mos.	20 to 24 mos.	Total 2 yrs.
Onset								
Cold	..	4	5	9	1	3	2	15
Grippe	..	1	2	3	..	..	2	5
Pneumonia	..	1	1	2	..	..	2	4
Unknown	..	1	2	3	..	..	2	5
Cough	..	4	16	20	4	5	11	40
Weakness	3	3	9	15	4	1	3	23
Pleurisy	..	1	2	3	..	..	..	3
Hemorrhage	..	..	..	..	1	2	2	5
	3	15	37	55	10	11	24	100

Duration of Disease of 100 *Arrested Cases.*

	10 to 15 yrs.	8 to 10 yrs.	6 to 8 yrs.	5 yrs.	4 yrs.	3 yrs.	2 yrs.	1 yr.	Total
Onset									
Cold	1	..	..	2	1	2	10	1	17
Grippe	1	1	..	..	3	3	2	..	10
Pneumonia	1	1	..	..	1	3	2	1	9
Cough	1	1	2	2	6	7	12	3	34
Weakness	1	..	..	..	..	1	..	1	2
Pleurisy	3	1	3	3	3	1	..	..	17
Hemorrhage	1	1	1	2	1	3	3	..	12
	8	5	6	9	15	21	30	7	100

The salient points to be noted in comparing these groups are that, of the arrested cases, in only two was weakness the most prominent initial symptom, as compared with twenty-three patients in the group that died.

Marked weakness as an early symptom means poor resistance, and must be looked upon as of bad omen.

On the other hand, pleurisy and hemoptysis as initial symptoms seem to be of favorable significance because their occurrence compels a patient's prompt attention and so he early becomes aware of active infection and the necessity for immediate treatment.

TABLE 2.

Complications During Course of Disease.

	Pleurisy	Hemorrhage	Larynx	Bowels	Ear	Bone	Glands	Rect. Fist.	Kidney	Lupus	Appendix	Meningitis
Arrested	66	67	3	0	2	4	1	2	1	1	1	0
Died	35	39	24	8	4	2	2	1	0	0	0	1

Pleurisy and hemoptysis during the course of the disease are also very frequent in the arrested cases. Pleurisy occurred in sixty-six of the favorable cases, as against thirty-five in the unfavorable group. Hemoptysis was present in sixty-seven of the arrested cases as compared with thirty-nine of the cases who died.

The conclusion that we draw from this table is that the pain from pleurisy and the hemorrhages may each be an indication of the production of antibodies in a sufficient amount to produce congestion and conditions favorable to healing.

Furthermore, the occasional occurrence of these symptoms prolongs proper treatment and we well know that the element of time is a large factor in determining ultimate results.

It is worth noting that tuberculous infections of the larynx were present in but three of the arrested cases, while twenty-four of the patients who died developed laryngitis, although the course of their disease was of shorter duration (average 14 months). This indicates that a low resistance must be the prime factor in the production of laryngitis, as the opportunity for contact infection is the same in all cases of open tuberculosis.

TABLE 3.

Age of Onset by Decades.

	11 to 20	21 to 30	31 to 40	41 to 50	51 to 60
Arrested	21	42	24	20	4
Died	27	41	24	6	2
	48	83	48	26	6

Relation of Measles to Onset.

	Negative in Childhood			Positive in Childhood		
	Acute	Gradual	Total	Acute	Gradual	Total
Arrested	9	20	29	27	44	71
Died	9	15	24	15	61	76

TABLE 4.

Family History.

	Positive				Negative	Sex	
	Mother	Father	Collat.	Total		Male	Female
Arrested	12	7	18	37	63	46	54
Died	18	9	17	44	56	45	55
	30	16	35	81	119	91	109

The family history was positive in thirty-seven of the arrested cases, as compared with forty-six of those who died. Although there are nine per cent. more favorable cases with positive family history, the difference is so small that one would not be justified in drawing conclusions that heredity influenced favorably or unfavorably the course of the disease.

TABLE 5.

Nationality.

	Irish	American	French	Swede	Finn	Scotch	German	Pole	Bohemian	Misc.
Arrested	31	30	13	8	6	4	4	1	1	2
Died	44	23	10	8	2	4	1	2	1	5

TABLE 6.

Sputum of Arrested Cases.

	Upon Admission.					Upon Discharge. Amount of Sputum			Bacilli	
	Total No.	Absent	Present	Bacilli Negative	Bacilli Positive	Absent	Decrease	Same	Negative	Positive
Incipient	14	4	10	5	5	5	4	1	9	1
Moderately advanced	42	5	37	9	28	15	13	9	25	13
Advanced	44	1	43	8	35	2	20	20	13	29
	100	10	90	22	68	23	37	30	47	43

Note that in this table ten patients had no sputum on admission, although some of them were advanced cases. Twenty-three had no sputum on discharge. Sixty-eight had positive sputum on admission and forty-three on discharge.

We find that the amount of sputum corresponds with the activity of the disease. If the sputum increases in amount it indicates active tuberculous inflammation and as the quantity of sputum lessens the specimens which contain bacilli become fewer.

It required two examinations to find tubercle bacilli in the sputum of fifty patients, three examinations to find bacilli in the sputum of eighteen patients, four examinations to find bacilli in the sputum of eight patients, and five examinations to find bacilli in the sputum of three patients. During the year antiformin was used in testing specimens of sputum from sixty patients, seven of which proved positive, although bacilli could not be found by other methods.

This work shows the fallacy of putting dependence upon one, or more, negative examinations of sputum, even in cases of open tuberculosis.

TABLE 7.

Arrested Cases.

	Râles in Admission	Discharge			Weight Discharge		
	No. Râles	No. Râles	Decrease	Same	Gained	Stationary	Lost
Incipient	4	10	12	..	2	13	..	1
Moderately advanced	..	42	9	20	13	35	7	0
Far advanced	..	44	3	12	29	37	3	4

This table shows that all but four of the cases showed râles after cough. A much larger number failed to reveal râles on ordinary breathing. I wish to emphasize this point. Many diagnoses are delayed because examiners do not insist upon the patient making a short cough at the end of each expiration while auscultation is being done. Even if râles are heard on quiet breathing, this method will usually bring out râles over a larger area and often show other lobes involved. After râles once appear and the tissue cells are destroyed, comparatively few cases lose them, except after a long period of time.

In advanced cases râles sometimes disappear following fibroid changes, or the diseased area softens, and being discharged leaves a cavity, with walls that have undergone firm cicatrization.

The presence of dry râles when considered alone, are of little importance in determining the activity or degree of arrest in an individual case.

The subjective symptoms are of greater value in considering prognosis, as well as in making an early diagnosis, because râles are of comparatively late appearance and remain after the active process heals.

Finally we will consider the pulse rate and temperature. Of the one hundred cases that obtained an arrest the average temperature for two weeks following admission was from 98.6 to 100. Eight others had a temperature of from 100 to 101 degrees. Forty-two had practically normal temperatures.

The pulse rate averaged from 90 to 105 in sixty-seven patients. The pulse was below 90 in all but twenty-eight, when discharged.

When a patient's temperature does not remain under 99 after two weeks' rest in bed our experience teaches us that the prognosis for obtaining an arrested condition is extremely poor, and if the temperature remains elevated more than four weeks, that the disease will continue to progress in spite of sanatorium treatment.

The twenty-eight patients whose pulse rate was above 90 upon discharge have, in our opinion, a poor prospect of continuing to hold the degree of arrest obtained, or to further improve. The pulse rate seems to respond very early to the influence of tuberculous infection and remains the best indication of a patient's resistance throughout the course of the disease.

The points we wish to emphasize are the importance of watching for early subjective symptoms, as by them a diagnosis may be made before ulcerative processes occur to free the bacilli. Also, that the finding of bacilli depends much upon the persistence of the search made for them; and further, that tuberculosis, even in advanced form, may be present without bacilli appearing in the sputum. Finally, in suspicious cases it is better to give patients the benefit of the doubt by telling them that their symptoms indicate early tuberculosis and to prevent further progress it will require a radical change in their mode of living. If a patient is sent to a sanatorium with a doubtful diagnosis no harm will have resulted, even if it should prove to be a simple bronchitis or an influenza infection.

The treatment is the same for the tuberculous and the nontuberculous and no harm has yet been known to result to a patient sent to a sanatorium even with a mistaken diagnosis, while irremediable harm results to many patients who are kept waiting for unmistakable symptoms of tuberculosis to develop.

I have purposely omitted to consider in detail the signs to be found by physical examination because early changes are hard to detect except by specialists, whose field is limited to chest affections. The general practitioner is the one whom nearly all patients first consult. It is on his skill that most patients must rely for an early diagnosis. The family physician whose work is in all departments of medicine does not have the time to devote to careful chest examinations, or the constant practice which is necessary to note slight changes in lung tissue.

He does, however, have the opportunity to note subjective symptoms and his routine work tends to make him a keen observer. Physicians must recognize tuberculosis when it manifests itself by loss of weight, or strength, or a pulse of 90, or an elevated afternoon temperature, or blood spitting, or pleurisy, or a cough. Any combination of these symptoms which cannot be explained by other causes should be considered sufficient proof of active tuberculous infection.

Failure to make a positive diagnosis from these symptoms is too vital an error for a patient to forgive, but a mistaken positive diagnosis leads to the right treatment, has no fatal sequel and will soon be forgotten.

Reports of Societies.

THIRTY-FOURTH ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

First Day—Thursday, May 9th.

THE EXENTERATION OF THE ETHMOIDAL LABYRINTH BY THE INTRANASAL ROUTE.

DR. HARRIS PEYTON MOSHER of Boston: The anterior boundary of the ethmoidal labyrinth is made by the internal angular process of the frontal bone and the posterior surface of the ascending process of the superior maxilla. The labyrinth cannot be entered effectively unless the curette is carried outward behind the ascending process of the superior maxilla toward the lachrymal bone. Removing the anterior end of the middle turbinate and curetting upward and not outward does not open the labyrinth to any extent. The internal angular process of the frontal bone makes two-thirds or the whole of the bony ring which is the first part of the naso-frontal duct. The best guide to the duct is the posterior surface of ascending process of the superior maxilla. In a large number of cases the naso-frontal duct is not a tubular canal but consists of a bony ring at the beginning and then becomes a triangular antero-posterior slit. This is more like an ethmoidal cell or an irregular meatus than a duct. The naso-frontal duct tends to run from without inward and to come into relationship with the extreme upper part of the anterior end of the middle turbinate. When the drainage canal of the frontal sinus has the cell form the anterior end of the middle turbinate makes its inner boundary. The duct, therefore, is reached most easily through the nose and through the anterior end of the middle turbinate at the level of the superior turbinate. A curette introduced at this point and carried outward toward the lachrymal bone and then withdrawn a little and carried straight downward and backward enters the anterior part of the labyrinth behind the ascending process of the superior maxilla and breaks down the cells through which the naso-frontal duct runs, destroying both the cells and the duct. Very little curetting is required to

convert the anterior part of the labyrinth into a single cavity. In the roof of this chamber, usually in the anterior outer angle, the opening of the nasofrontal duct is placed. If it is the wish of the operator to clean out all the ethmoidal cells, the posterior half of the labyrinth is entered by piercing the attachment of the middle turbinate and by curetting still further backward, using all the while the outer side of the middle turbinate as a guide. If the head of the patient is held level the middle turbinate guides the curette backward into the posterior ethmoidal cell. Often the posterior half of the labyrinth is a large cavity made up of only one or two cells. This portion of the labyrinth has been, as it were, exenterated by nature. When the curette brings up against the back wall of the labyrinth the remaining part of the middle turbinate and the lower half of the superior turbinate are removed. Then the posterior part of the superior turbinate is taken away flush with the front face of the sphenoidal sinus. The operator now recognizes the inner part of the front face of the sphenoidal sinus which is free in the nasal cavity, and the outer part which has a common wall with the posterior ethmoidal cell. The upper outer angle of the posterior ethmoidal cell is dangerous to curette or to probe. It is of the utmost importance that the operator should be sure of his landmarks in this locality. He orientates himself by finding the upper rim of the choana and then differentiating the free face of the sphenoidal sinus by probing upward from the rim of the choana close to the septum. Having made out the extent of the free face of the sinus, the width of the common wall between the sphenoidal sinus and the posterior ethmoidal cell is determined. The dividing line between the two parts of the anterior face of the sphenoidal sinus is made by an obliquely vertical line which is the attachment of the superior turbinate. A common mistake made by the operator is to get lost in the posterior ethmoidal cell, that is, he goes too high and too far outward and considers the posterior wall of the posterior ethmoidal cell as the whole of the front face of the sphenoidal sinus. This mistake, if persisted in, will carry him into the brain. Insufficient removal of the posterior part of the superior turbinate and allowing the head of the patient to become tipped upward, are the chief causes which lead to this confusion. After the landmarks of the front face of the sphenoidal sinus have been cleared and recognized the sinus is entered near the septum, if possible through the ostium, and the whole of the anterior wall removed. The mishaps of the operation are entering the orbit through the lachrymal bone and entering the posterior part of the anterior fossa of the cranial cavity at the apex of the orbit. The first accident is trivial, the second is fatal. Puncture of the extreme upper part of the anterior end of the middle turbinate for catheterizing the frontal sinus or for exenteration of the anterior ethmoidal cells is readily accomplished under cocaine anesthesia. For the complete removal of the anterior and posterior cells, especially if this is to be accomplished at one sitting, it is more satisfactory to use a general anesthetic.

DISCUSSION.

Dr. Coakley, New York: The anterior ethmoidal cells had always to him been the most difficult things to clean out, and he was glad to have this light thrown upon a far more easy way of dealing with this region. He considered it impossible or rare to be able to demonstrate on a normal nose, or a nose not extensively diseased so far as the frontal and anterior group of ethmoids is concerned, the probing of the frontal sinus, while, on the other hand, in a chronically diseased frontal sinus, especially those with polypoid formations, it was extremely easy and the rule to be able to probe the frontal. He mentioned a difficulty encountered in this intranasal work, namely, that if the ethmoidal labyrinth is cuboidal in shape and runs in a straight forward and backward direction, it is easy to exenterate the ethmoidal labyrinth at one or more sittings, but if the ethmoidal cells branch out over the roof of the orbit it is extremely difficult to get at all these cells through any intranasal operation, and he believed that the only operation likely to reach all ramifications is one which takes off all the outer wall of the ethmoidal labyrinth, or the inner wall of the orbit, which cannot be safely done intranasally.

Dr. Ingalls, Chicago: The author's explanation would make it much easier in future to open the frontal sinus properly and clear out the ethmoid cells, and thus do away with the extensive operation heretofore considered necessary.

REPORT OF A CASE OF MYXOFIBROMA OF THE NASOPHARYNX.

Dr. Joseph H. Bryan, Washington, D. C.: The report of this case is interesting from the fact that benign growths of this character in the nasopharynx in children are not very common. Maggie C., an undeveloped and anemic girl, 12 years of age, came under his observation during March of this year, complaining of occlusion of both sides of the nose, headache, noisy respiration, and at times difficulty in swallowing. Examination of the nose showed the left side quite free, but no air could be drawn through it into the nasopharynx. The right side was so filled with thick mucous secretion that no satisfactory view of the interior could be obtained. After clearing the nose of mucus he could not get any view of the growth. Examination of the mouth showed a large pinkish growth hanging in and filling the nasopharynx almost completely. The growth extended into the pharnyx about 1-6 of an inch below the free margin of the soft palate. Owing to the great timidity of the child, it was impossible to remove the growth without the aid of a general anesthetic, so she was placed under ether anesthesia, and a wire snare was passed well up into the nasopharnyx, the growth seized, and, after firm traction, withdrawn. The hemorrhage following was quite severe for a few moments, but gradually subsided after firm compression by means of a gauze compress passed well up into the nasopharnyx. The growth after removal was found to be pinkish in color, quite firm to the touch, and measured 3 inches in length. Several days after its removal, on posterior rhinoscopic examination, an excellent view of the nasopharynx was obtained, and there were two points which showed an ecchymotic state, either of which might have been the seat of attachment; one in the roof of the nasopharynx which contained some adenoid tissue, and the other in the right posterior nares just above the posterior extremity of the middle turbinal. The latter was probably the point of attachment. The following is a report of the micro-

scopic examination made by Dr. J. B. Nichols: "The tumor is covered with stratified columnar epithelium, and is made up of myxofibromatous and soft fibromatous tissue, containing massive extravasations of blood and fibrin, small blood vessels are plentiful, gland structure nearly absent. Scattered through the substance of the tumor, in places in more or less dense collections, are an abundance of polymorphonuclear leucocytes, small lymphocytes, plasma cells, and pigmented phagocytes." It is impossible to estimate the frequency with which these neoplasms occur, owing to the fact that many cases are not reported, but judging from the number of reported cases, they cannot be considered to be very common. Myxofibromas may be considered of nasal origin and generally spring from the upper part of the posterior nares, where the nasal mucous membrane is continuous with that lining the nasopharynx, while fibroma, a much more serious affection, has its origin in the nasopharynx. The former may therefore be said to partake of the characteristics of both nasal and naso-pharyngeal growths, which may be explained by the fact that they spring from the junction of the two cavities, the lining membrane of the two cavities being quite distinct histologically.

DISCUSSION.

DR. CASSELBERRY, of Chicago, stated that he had seen in a child of 14 a similar growth, not so abundant as to be visible from the mouth but obstructing the back end of the nostril and the corresponding side of the nasopharynx to a total degree, and which had excited a suppuration in the sphenopost-ethmoidal group of cells.

DR. COAKLEY, of New York, recalled having seen similar cases in two girls, one of 12 and the other 6 years of age. In one case the mass extended down lower than in the author's case, and the patient was only cured after opening up the antrum which was found completely filled with the same sort of material, and the exenteration of the ethmoids. In the second case a large mass was removed but promptly recurred and therefore the antrum was opened and found filled with polypi, the ethmoid cells were the seat of polypoid degeneration, and after the removal of all this polypoid growth tne patient recovered and has had no recurrence.

DR. SWAIN, of New Haven, reported a case in which the growth recurred. On examination he found what proved to be a myxofibroma of the nasopharynx which had come down by a long pedicle and hung in front of the palate and lay with its posterior surface on the tonsil. The polyp was readily pulled away with the snare and it was then discovered that the pedicle came from the posterior superior attachment of the middle turbinate. This growth was as large as a pigeon's egg.

(To be continued.)

Book Reviews.

An Operating Theatre in Private Practice. By C. HAMILTON WHITEFORD, M.R.C.S., L.R.C.P. London: Harrison and Sons. 1912.

This monograph is a detailed but clear and simple description of a small private operating theatre built by the author for use in his personal practise. It is written with the purpose of aiding other surgeons in towns and smaller cities, of emphasizing the writer's wise conviction that good surgery cannot be done without proper appliances and environment, and of pointing out that the cost of obtaining these is by no means prohibitive. Some of the details of his theatre differ from such as would be adopted in this country, but these merely represent unessential local variations of method and technic. The book is well arranged, complete, and effectively written, the dryness of its subject being relieved by the author's vivacity and trenchant directness of style and felicity of illustration. An appendix contains some "Elementary Facts of Asepsis for Nurses," which might to advantage be impressed upon the pupils of all training schools.

Salvarsan in Syphilis and Allied Diseases. By J. E. R. MCDONAGH, F.R.C.S. London: Oxford University Press. 1912.

This small volume is published as a supplement to "A System of Syphilis" edited by D'Arcy Power and J. Keogh Murphy, among the Oxford Medical Publications. After a discussion of the toxic symptoms, so called nueror-recurrences, fatal cases, contra-indications and methods of administration of salvarsan, the writer in succeeding chapters touches upon the effect on the Wassermann reaction, the excretion of arsenic, and the use of the drug in the different stages of syphilis, as well as in the affections of the nervous system, and in the congenital form. In his conclusions the writer lays stress on the importanc of the drug in prophylaxis, as it has been shown to be the quickest and most effective means of shortening the duration of infectious lesions by killing with extraordinary rapidity the spirochætes in chancres, mucous patches, and condylomata. If this ability to render a patient less infectious to others were the only merit of salvarsan, its use would be justified, but in the writer's opinion it does more,—it cures. "Ehrlich has done mankind a service which takes rank along with those of Lister and Jenner."

The Care of the Skin and Hair. By WILLIAM ALLEN PUSEY, A.M., M.D., Professor of Dermatology in the University of Illinois. New York and London: D. Appleton and Company. 1912.

This little book by Dr. Pusey of Chicago offers to the general public what, in the words of its author, every one of intelligence should know about the skin and its common disorders. Its aim is admirably accomplished and the facts are clearly and simply stated. Common sense is evidenced in every line, and no excursions are made into the fields of sensationalism so easily to be approached in a popular subject. The book is heartily commended to the general reader.

Baby's Teeth to the Twelfth Year. By ALBERT WESTLAKE, D.D.S. New York and London: Mitchell Kenneeley. 1912.

This little brochure, appropriately bound in delicate blue, is not a scientific treatise but "a friendly talk in print" to parents about the care of their babies' teeth. Its ideas are in the main sound, though sometimes expressed in rather unnecessarily babyish form even for young parents. There is a tendency to overwork the hygienic and physiologic fallacies which in this sort of book correspond to the pathetic fallacy of literature. The author is inclined to attribute dental caries in childhood to absorptive intoxication from intestinal stasis, and recommends the treatment of constipation in both mother and child by diet, exercise, high enemas, and divulsion of the rectum with tampons. There seems no adequate reason for the provision, at the close of the book, of ruled spaces for the physician's and the nurse's autograph and for the names of the minister, godparents and family dentist.

The Prevention of Dental Caries. By J. SIM WALLACE, D.Sc., M.D., L.D.S. Second edition. London: Office of *The Dental Record.* 1912.

This well-printed and bound English book presents in monographic form the author's theories as to the prophylaxis of dental caries. This, he considers, consists foremost in the natural hygienic method of the normal, self-cleansing processes of diet and mastication, secondarily in artificial methods, such as mouth washes, antiseptics, toothbrush and tooth powder. The former he insists upon as of primary importance in securing healthy conditions of mucus and saliva and in preventing those conditions, such as hypoplasia, irregularities of the teeth, and recession of the gums, which predispose to dental caries. There is an excellent bibliography of forty-seven titles, and an appendix table showing in parallel columns the relations between dental caries and the various foodstuffs. At a time when there is coming to be such widespread interest in dental hygiene, this volume should be of important general value.

Studies from the Rockefeller Institute for Medical Research. Volume xiv. New York: The Rockefeller Institute for Medical Research. 1912.

This latest volume of publications from the Rockefeller Institute consists of a series of reprints of fifty-four articles, in English and in German, representing research done in the laboratories and hospital of the Institute and in allied institutions. All are on topics of active modern medical concern and interest. Particularly to be noted is the work of Flexner on Epidemic Poliomyelitis, of Noguchi on Syphilis, of Meltzer on Intratracheal Insufflation, and of Carrel on Visceral Transplantation and on The Cultivation of Tissues *in Vitro.* Many of the articles are well illustrated by charts, tracings, and diagrams. There is a particularly admirable series of forty-eight plates representing the "pure cultivation of pathogenic *treponema pallidum.*" The volume is a repository of the latest progress in medical research.

The Structure and Development of Crown Gall: A Plant Cancer. By ERWIN F. SMITH, Pathologist in Charge of the Laboratory of Plant Pathology; and NELLIE A. BROWN and LUCIA MCCULLOCH, Scientific Assistants. Washington: Government Printing Office. 1912.

This monograph, published as a bulletin (No. 255) of the bureau of plant industry of the United States Department of Agriculture, deserves attention as presenting an admirable piece of experimental work in the pathology of vegetable neoplasms. The senior author has demonstrated that crown gall in plants is caused by infection with *Bacterium tumefaciens,* and is an inoculable disease. He emphasizes strongly the analogy between this condition and those of malignant animal neoplasms. In previous issues of the JOURNAL, Mr. Smith's work has been commented upon with approval, and this latest contribution adds much to the cogency of its suggestion. It is illustrated with several drawings and with a series of 109 beautiful plates.

Common Practical Therapeutics. By ALBERT ROBIN, Professor of Clinical Therapeutics in the Faculty of Medicine at Paris; Member of the Academy of Medicine. Vol. iii. Paris: Vigot Frères. 1912.

The first volume of this manual of French therapeutics was reviewed in the issue of the JOURNAL for May 18, 1911 (vol. clxiv, p. 724), and the second in the issue for Sept. 14, 1911 (vol. clxv, p. 415). The present third volume is devoted to the treatment of tuberculosis. The first part deals with the soil of pulmonary tuberculosis and the broad indications of treatment; the second with hygiene and nutrition; the third with the treatment of pulmonary phthisis; the fourth with the treatment of tuberculosis according to age and associated morbid conditions; the fifth with the treatment of extrapulmonary localizations of tuberculosis; and the sixth with social defense against tuberculosis. This volume maintains the general merits and character of its predecessors. It is comprehensive and complete, and embodies the latest advances and French practice in the therapy of tuberculosis in its various forms.

Stomatology in General Practice. By H. P. PICKNELL, M.D. London: Henry Frowde, and Hodder and Stoughton. 1912.

This volume in the series of Oxford Medical Publications is stated in its subtitle to be "a text-book of diseases of the teeth and mouth for students and practitioners." Written by a British dentist, it is intended to illuminate for the general physician not only the whole field of dental disease and its treatment but also the

ill-defined territory lying between medicine and dentistry, and to afford dental students and dentists a clear conception of the cause, diagnosis, and course of the oral lesions associated with dental or peri-odontal tissue. In this the author is eminently successful. Tumors and fractures of the jaws are considered with particular thoroughness. Special chapters are devoted to the effects of systemic diseases upon the oral tissues, and to the effects of oral sepsis upon systemic conditions. The original matter includes the combined surgical and mechanical method of treating cleft palate, the preventive treatment of dental caries, the surgical treatment of dental arthritis, and a simple method of treating arthritis of the jaw. Three appendices describe a method of examining the mouth and charting the teeth in the examination of school children, formulæ useful in oral and dental conditions, and a minimum list of dental instruments suggested for the use of medical practitioners. The work is illustrated by 65 excellent figures in the text. This book should prove of great value to those for whom it is especially designed.

Oxford Medical Publications. Common Disorders and Diseases of Childhood. By GEORGE FREDERIC STILL, M.A., M.D. (Cantabria), F.R.C.P. (London); Professor of Diseases of Children, King's College, London; Physician for Diseases of Children, King's College Hospital; Physician to the Hospital for Sick Children, Great Ormond Street; Honorary Member of the American Pediatric Society. Second edition, pp. 813. London: Henry Frowde, Oxford University Press; Hodder and Stoughton, Warwick Square, E. C. 1912.

In this, the second edition in two years, this well-known book has been revised and brought well up to date. It represents the best of contemporary English thought and teaching in Pediatrics. It is eminently a personal book and is especially strong clinically. The style is somewhat discursive. It is, however, perhaps easier reading on this account. There is nothing to be added to what has already been said of it.

A Text-Book of Gynecology. By WILLIAM SISSON GARDNER, M.D. With One Hundred and Thirty-Eight Illustrations in Text. New York and London: D. Appleton and Company, 1912.

This compact manual of gynecology is intended primarily for medical students, and aims to supply the kind and amount of information needed for their study. "The greater amount of space is given to diseases that are common and with which it is essential that the student should be familiar." The subject is covered in twenty-two well-arranged, systematic chapters. The illustrations are chiefly pathologic, and represent gross specimens and microscopic slides from material which the author has "been using for several years in teaching diagnosis and living gynecologic pathology." The description is concise, the exposition clear, the typography excellent. The work should prove an admirable and convenient text-book for the initial study of this important special department of surgery.

Pleurisy, Including Empyema and Bronchiectatic Conditions. By ALEXANDER JAMES, M.D., F.R.C.P.E., Consulting Physician to the Edinburgh Royal Infirmary and to the Edinburgh City Hospital. With illustrations. 243 pages. New York: William Wood and Company. 1911.

This volume on pleurisy and allied conditions is of value as an extended description of the subject, containing many interesting facts from literature and original observations which have not received general attention. Much space is devoted to reports of cases, which while they seem at first sight somewhat too extended, yet serve well to illustrate the clinical phenomena in question. The discussion of the physical signs is perhaps the weakest portion of the work, since it fails to bring out the occurrence of cases in which the findings, particularly of auscultation, are atypical. Also the meagre mention of interlobar collections of fluid or pus seems inadequate. The clinical importance of x-ray diagnosis is not sufficiently emphasized. Yet in spite of these and other points which may be criticized, the book may be read with considerable profit.

Essays on Genitourinary Subjects. By J. BAYARD CLARK, M.D., Assistant Genitourinary Surgeon to Bellevue Hospital, Consulting Genitourinary Surgeon to the Elizabeth General Hospital, Fellow of the New York Academy of Medicine, Member of the American Urological Association, Member of the American Association of Genitourinary Surgeons, etc. New York: William Wood and Company. 1912.

This little book consists, as its title implies, of a series of ten short essays on various subjects pertaining to Genitourinary Surgery. Some have been written as separate articles to be read at medical meetings, while others were written for this collection.

The ten chapters of the book contain little that is new, and yet each one manages to convey a point of view which is always interesting and often compellingly so. The chapter on "The By-Ways of Prostatectomy is quite remarkable for the forceful brevity of its resumé of this operation; and the chapter "Is Genitourinary Surgery Justified as a Special Branch of Medicine?" should provide much food for thought for many a surgeon and many a hospital governor.

Altogether the book is distinctly worth while. It teaches much to many and it has real individuality and charm of expression. It should be read by every surgeon in the land.

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FIFTEENTH INTERNATIONAL CONGRESS ON HYGIENE AND DEMOGRAPHY.

THE Fifteenth International Congress on Hygiene and Demography, of which several preliminary announcements have previously already been made in the columns of the JOURNAL, will be held at Washington next week, from Sept. 23 to 28, inclusive. This congress is not only of great general scientific importance, but is also of peculiar local interest in Boston and Massachusetts, since its president is Dr. Henry P. Walcott, of Cambridge. Moreover, it is the late Dr. Charles Harrington, of Boston, to whom is due the fact that the congress is meeting in this country. While attending the thirteenth congress at Bruxelles as a delegate in 1903, he conceived the plan of inviting a subsequent congress to Washington; and with his customary energy he worked so zealously to this end, that at the fourteenth congress at Berlin in 1907, the invitation was formally extended by the United States government, and was accepted.

The nations and peoples of the earth will be extensively represented at the coming congress. Thirty-two foreign countries have arranged to send delegates,—every one of the forty-eight states of the Union will participate; and 73 individual cities and towns in this country will send special municipal representatives. The largest city delegation is that of ten from Minneapolis, Minn. Chicago will send six delegates, New York four, and Boston three. The Boston delegation will consist of Dr. John H. McCollom, Dr. Francis X. Mahoney, and Mr. Edward F. McSweeney, representing respectively the City Hospital, the Boston Board of Health, and the Consumptives' Hospital Department. Altogether, about 3000 delegates are expected to attend as active members of the congress.

Of the various foreign countries Germany has sent the largest single delegation, consisting of 300 physicians, who have already arrived in the United States, and who will continue their stay after the congress in order to avail themselves of the occasion to make an extended medical tour of the country. On Wednesday evening of this week, Sept. 18, the German Medical Society of New York held a reception in honor of the German and Austrian representatives.

The British delegation includes health officers from the principal English cities. The Royal Sanitary Institute will be represented by three delegates.

"The Hungarian Government will be represented by four delegates, Professor Dr. Tangl, dean of the medical faculty of the Royal Hungarian University at Budapest, his three fellows being Dr. Odon Terry, Dr. Ladislaus Goger and Dr. Louis Toth. Italy sends Professor L. Pagliani of the University of Turin as its formal representative.

"From France there will be Dr. Netter, representing the Academy of Medicine, one of the highest authorities in the world on infant paralysis, and he will be accompanied by Levaditi of the Pasteur Institute, Dr. Lucien Marsh, director of general statistics, and Leclerc de Pulligny, engineer of roads and bridges.

"The municipality of Antwerp sends its alderman of public health, Dr. V. Desguin, to represent it; Dr. M. W. Pynappel of Zwolle is delegate for the Netherlands; Dr. A. C. J. Bornemann, chief physician of the Royal Navy, will represent Denmark; the Hygienic Society of Warsaw (Poland) has named Dr. Ladislas Dobrzynski, president of the Garden-Cities section of the Association.

"Australia will send Dr. J. S. Purdy, chief health officer of Hobart.

"From Brazil there will be Dr. Alfredo da Graca Couto, inspector of the government service of isolation and disinfection, and Dr. Cassio Barbosa de Rezende, assistant medical demographer. Uruguay has appointed for delegate Senor Dr. Don Miguel Bercerro de Bengoa, while Chile has place in both representation and programme, Dr. David Montt Garcia, delegate, reading a paper by Leotardo Matus, who has discovered among the Araucanian Indians games that make a complete system of physical education. From Canada a special delegate has been named by the department of militia and defence, Major Lorne Drum, D. P. H., of the permanent army corps. Costa Rica, Mexico,

Panama, Salvador, Cuba and Hayti have given official notice of intention to be represented, while the delegate from Guatemala has already been named, Senor don Joaquin Mendez."

The leading medical institutions and schools of the world will also be represented. "Acceptances already have been received from the Lister Institute of Preventive Medicine, London; Royal Institute of Public Health, London; University of Liverpool; University of Lyons, France; College de France, Paris; the University of Giessen, Germany; University of Jena, Koenigsberg University, the Royal College of Surgeons of Ireland, London School of Tropical Medicine, the Technical University of Budapest." All of these will send special delegates to the Congress. American institutions of learning will be represented likewise. Among the principal New England colleges to send delegations are Amherst, Bowdoin, Brown, Williams, and the Massachusetts Institute of Technology.

The work of the congress will be done in plenary and in joint sessions, under the two great divisions of hygiene and demography, with nine sections and two subsections. The sessions will be held in the Memorial Continental Hall, and some account of their more medically important proceedings will appear in succeeding issues of the JOURNAL.

In addition to the general and the special section meetings, there will be interesting exhibits by the various participating countries and communities, from Sept. 16 to Oct. 4, in the building of the American Red Cross. The largest single application for room in this building has been received from the New York City Department of Health, which will have 4000 square feet of wall space and 500 square feet of floor space.

"In the New York exhibit are to be a model tuberculosis clinic, a tuberculosis registration office, an infant milk station, models of the Otisville and other department of health buildings and a sub-exhibit showing the general method of handling and controlling the milk in New York city."

"The exhibit of Boston will be less extended, but will require much space, for here will be displayed charts showing the control of infectious disease, the school inspection system, with details of preventive work and the care of milk and other items affecting the general health, while from the Massachusetts State Board there will be exhibits of the work that lies within its special province."

Extensive exhibits will also be made by Louisiana, North Dakota, and other states of the Union.

The American Association for the Study and Prevention of Infant Mortality will be represented at the congress by 50 delegates, and will make a large exhibit. The Boston Milk and Baby Hygiene Association is also sending an exhibit of its work.

"This exhibit includes many photographs, showing mothers and babies crowding to the milk stations. One chart shows that the death rate among babies whose mothers nurse them has been only 1.7 per cent., while it is over 14 per cent. among bottle-fed babies.

"The Boston Dispensary is sending an exhibit of its work, including many charts and photographs. One of the features of this is a chart showing the benefits derived by its eye clinic through the introduction of social service.

"Over 200 persons come annually to the eye clinic of the dispensary to have their eyes tested to see whether they need glasses. Two years ago, before social service was introduced into the clinic, 30 to 40 per cent. of the patients who were found to need glasses never came back to secure them, but drifted away without realizing the need of taking proper care of their eyesight. At the present time, through social service, this percentage of waste has been reduced to less than one-third and is now only 10 per cent.

"As a part of its exhibit the Boston Association for the Relief and Control of Tuberculosis is sending a framed chart showing the progress made in the reduction of tuberculosis from the organization of the association in 1903 to the end of 1911.

"As an example of the work it is doing toward the prevention of tuberculosis and for better general public health conditions not only in the District of Columbia but throughout the country the Association for the Prevention of Tuberculosis of the District of Columbia has arranged to distribute to each of the delegates and visitors to the Congress a copy of a code of health rules formulated by the association and a copy of a set of resolutions relating to the pasteurization of milk."

The cost of the congress will be borne partly by national and municipal appropriation, partly by individual contributions, and partly by the fees of members. The total expense of the congress is estimated at $113,000, towards which the United States government has appropriated $60,000. About $40,000 further has been raised. The remainder is still to be provided for. Mr. Andrew Carnegie, Mr. John D. Rockefeller, Mr. Henry L. Higginson and the Russell Sage Foundation have contributed each $5000. The city of Boston has appropriated $2000 to meet the expenses of its own delegation and exhibit.

The success of the congress seems assured, and from these details may be realized the extent, variety, and importance of the topics it will have under consideration. Particular credit and remembrance is due all those whose foresight and long continued labor, now coming to fruition, will make this occasion a worthy exemplification of American methods and progress in scientific sanitation, hygiene, and enlightened care of the public health.

UNITED STATES PUBLIC HEALTH SERVICE.

By act of Congress in 1798 the Marine Hospital Service was created to provide for the medical relief of sick and disabled seamen of the American merchant marine. It was then and is still a unique and distinctly American institution. Until separate naval hospitals were established in 1811 the benefits were extended also to sailors of the United States Navy. In 1871 a reorganization took place, and the marine hospitals were placed under the charge of Supervising Surgeon Woodworth, who was commissioned as such by the president.

Since 1871 the functions and duties of the service have been extended from time to time by Congress as new necessities arose. The corps of officers has been increased, entrance and promotion examinations have been instituted and officers have been made subject to change of station. Medical inspection of immigrants, national quarantine, the exhaustive scientific study of disease centering in the hygienic laboratory, and many other important features have been added to the functions of the service.

In 1902, recognizing the importance of the Marine Hospital Service to the nation as well as the enormous increase of its functions, relative to public hygiene and sanitation, Congress changed the name of the century-old Marine Hospital service to the cumbersome but more descriptive, Public Health and Marine Hospital Service.

Under the aggressive leadership of the late Surgeon-General Walter Wyman, who for nineteen years directed its activity, the Public Health and Marine Hospital Service won general confidence and respect for its effective campaigns against epidemic disease, and its excellent scientific studies. It represented the sole national agency operating to combat epidemic disease in human beings. On the death of Dr. Wyman in 1911, Dr. Rupert Blue was appointed surgeon-general by President Taft, and has well justified the President's choice.

It was eminently fitting that Congress should again change the name of the service and this was done in an act which was approved by the President on August 14, 1912. This act, which was noted in the issue of the JOURNAL for August 29, shortens the title to the Public Health Service, makes the salaries of the commissioned medical officers equal to those of the army and navy medical corps, and provides for the study and investigation of "the diseases of man and the conditions influencing the propagation and spread thereof, including sanitation and sewage, and the pollution either directly or indirectly of the navigable streams and lakes of the United States."

Such legislation was demanded as a measure of justice to the officers of the Public Health Service as well as to insure the continued efficiency of the service. It must be a cause for congratulation to the medical profession as well as to the country at large. This legislation is not inimical to the establishment of a national department of health, nor does it in any way portend such a department. It seems a happy solution of a question which has aroused unnecessary animosity and bitterness. No intelligent and well informed individual can believe otherwise than that the medical profession as a whole is animated by motives of the highest altruism and the most far-sighted public spirit in its recognition of the necessity for the study and control of epidemic disease. As to whether this object would be best furthered by a national department of health is entirely beside the question in discussing this recent legislation.

Nearly a score of men have met death in the line of duty in the Public Health Service in the last decade. The latest martyr was Past Assistant Surgeon T. B. McClintic, who died in Washington on August 13, 1912, from Rocky Mountain spotted fever, contracted in the course of his investigations of that disease in Montana. His was the first and so far the only case of this disease this summer. The mortality of spotted fever in Montana was from 90 to 100%. Dr. McClintic was considered the leading authority on the disease, and had done excellent work in its eradication. Similar dangers are encountered continually by Public Health Service officers. Their work is of most vital concern to

the country, and Congress has done well to give them a just increase of salary.

THE MILK-CAN QUESTION.

IN the issue of the JOURNAL for Aug. 8 (vol. clxvii, p. 207), we commented editorially on having examined six milk shipping cans and of having found the covers of five to be damaged in such a way that they did not protect the milk from dirt in transit. It was observed also that some of the cans had not been properly washed inside. The farmer who had these cans in his possession complained that he was charged for washing the cans which the milk company undertook to do for him, that he had to accept such cans as were sent and that he was held responsible for the dirt in the milk. It appeared that this arrangement was unjust to the farmer and that the milk supply needed more effective regulation and closer inspection of the methods of the milk dealer in the interest alike of the farmer and of the consumer. The question of a remedy for this situation is complicated by the fact that milk has already risen in price and because it is said that further regulation would increase its cost beyond the means of the poor.

Dirty milk is false economy. It is unwholesome, and the poor least of all can afford illness. Illness of the parents involves hardship to the family, and in the children it requires sacrifice by the parents. Those who advocate the sale of dirty milk on the ground of cheapness are likely also to defend the packer who foists on the public "embalmed beef." One proposition seems as reasonable as the other. Dirty milk is one of the cheapest beverages and one of the cheapest foods. We believe that a slight increase of price would make it possible for the consumer to get milk that is reasonably clean and reasonably safe and that this difference would be more than counterbalanced by the saving of time and of effort now thrown away.

The rapid development of the demand for certified milk shows that there is a strong sentiment for better milk in some quarters, and when the people of Massachusetts fully realize the filthiness of some of the milk now sold to them they will cease using it until such time as reasonable cleanliness can be assured. Until the people more generally show an interest in clean milk, and make the legislative bodies feel that they demand it, our milk supply is likely to improve but slowly. Physicians and the press should do more to interest the public in good milk.

MEDICAL NOTES.

A LIVING BRITISH CENTENARIAN.—Mrs. Mary Stockholm, of Stogursey, near Bridgewater, England, who is said to have been born on Aug. 24, 1812, celebrated recently her supposed centennial anniversary. Her health is reported to be excellent.

A BRITISH MEDICAL CENTENARIAN.—Mr. Edgar Jones, J.P., M.R.C.S., Eng., who died on Aug. 26 at Great Burstead, in Essex, England, is said to have been born on Jan. 5, 1810. He had practiced his profession for some time in Bristol and at Brislington, a neighboring suburb. He was for a number of years the senior member of the Royal College of Surgeons of England. It is not often that a surgeon thus lives to centenarian age.

NUMBER AND DISTRIBUTION OF EUROPEAN CENTENARIANS.—Statistics recently published in Germany indicate that there are at present in Europe over 7000 living centenarians. Of these, 3888 are said to be in Bulgaria, 1704 in Roumania, 573 in Servia, 410 in Spain, 213 in France, 197 in Italy, 113 in Austria-Hungary, 92 in England, 89 in Russia, 76 in Germany, 22 in Norway, 10 in Sweden, 5 in Belgium, and only 2 in Denmark. It appears that longevity preponderates in the Balkan region, and is at a minimum in the Scandinavian countries.

NATIONAL DENTAL ASSOCIATION.—The annual meeting of the National Dental Association was held last week in Washington, D. C. Dr. Frank O. Hetrick, of Ottowa, Kan., was elected president of the association for the coming year, and it was voted to hold the next meeting at Kansas City, Mo.

NATIONAL HYGIENE ASSOCIATION.—Report from Washington, D. C., on Sept. 14, states that Miss Mabel Boardman, of the American Red Cross, was elected a member of the board of governors of the National Hygiene Association, and Dr. W. A. Evans, of Chicago, and Dr. Oscar Dowling, of New Orleans, vice-presidents.

FEDERAL CARE OF LEPERS.—There are in the United States at present 146 cases of leprosy, distributed among 19 states. Only 3 of these states, Massachusetts, Louisiana, and California, make adequate provision for their care. It would seem the part of economic and medical wisdom that all these cases should be segregated at a single institution under federal care.

International Congress of Gynecology and Obstetrics.—The International Congress of Gynecology and Obstetrics was held last week in Berlin, Germany. Among the American representatives in attendance were Dr. Parker Davis, of Philadelphia, Drs. Hermann Boldt and Arthur Stein, of New York, and Dr. J. Riddle Goffe, chief surgeon of the New York Woman's and Polyclinic Hospitals. Dr. Goffe was elected president of the next international congress, which will be held in New York in September, 1915.

Rabies in California.—In an excellent article in the August number of the *California State Journal of Medicine*, Dr. Wilbur A. Sawyer, director of the bureau of the hygienic laboratory, reviews the present status of rabies in that state. The disease is now extensively epizoötic, and the author reports in detail 11 human cases, and describes the administration of Pasteur treatment to 302 cases in California, since March 13, 1910. Owing to the easy controllability of the disease, the author declares it "a disgrace for any community to permit rabies to become prevalent within its boundaries."

Smallpox and Poliomyelitis in California.—The weekly report of the United States Public Health Service for Aug. 30, states that a virulent type of smallpox is at present prevalent at Los Angeles, Cal., where from July 28 to Aug. 17 there were 19 cases of the disease with 7 deaths. Poliomyelitis also is epidemic at Los Angeles, where from June 8 to Aug. 17 there were 226 cases of the disease. Rigid quarantine measures are being taken for the eradication of both infections.

Cactein as a Galactagogue.—Report from Santa Rosa, Cal., on Sept. 10, states that recently two cows, placed on a diet of spineless cactus, showed an immediate and steady increase in their total output of milk, amounting to nine pints on the fifth day. The question naturally now arises as to what might be the effect of cactein administered to human beings as a galactagogue.

NEW ENGLAND.

A Centenarian.—Mrs. Ellen Burns, who died at Chelsea, Mass., on Sept. 11, is said to have been born in May, 1812, in Ireland. She came as a child to the United States, and since 1874 has lived in Chelsea. She is survived by three daughters, one son, twelve grandchildren and seven great-grandchildren.

Reunion of Dartmouth Medical Alumni.—Last week, at Hanover, N. H., was held a general reunion of the alumni of the Dartmouth Medical School.

Medical Inspection of Boston Schools.—On Monday of last week, Sept. 9, the Boston public schools opened for the season, with an attendance of about 103,000 pupils. The work of medical inspection was immediately begun by officers of the Boston Board of Health, and is being continued during the current week. Particular attention this year is being paid to dental inspection and to instruction in oral hygiene.

Recent Medical Bequests.—The will of the late Charles P. Jaynes, of Boston, who died in this city on Sept. 6, was filed on Sept. 12 for probate at the Middlesex probate court, East Cambridge, Mass. It contains bequests amounting approximately to $3000 to the Boston Floating Hospital and $2000 each to the Children's Hospital, Boston, and the Massachusetts General Hospital.

Medical Items in an Old Newspaper.—On Thursday of last week, Sept. 12, was reopened the box which on Sept. 28, 1833, was laid under the corner-stone of the Boston Court House, now being demolished to make room for a new structure. In one of the daily papers of that date, deposited in the box, was a news item describing the ravages of Asiatic cholera, then epidemic in Mexico. Another item relates to a fight between two men at Hingham, Mass., in which one of the contestants was thrice stabbed in the abdomen. His treatment and its result are not stated. After the lapse of 79 years these medical items read much as they might appear in a newspaper of today.

Report of the Faulkner Hospital.—The recently published eighth annual report of the Faulkner Hospital, Jamaica Plain, Mass., records the work of that institution for the year ending April 30, 1912. During this period, which was marked by the death last summer of Dr. George Faulkner, to whose daughter the hospital is a memorial, a total of 439 patients received 6921 days' treatment. Five nurses were

graduated from the training-school. In the superintendent's report, particular attention is called to the lack of sufficient accommodation for obstetric cases.

CLOSING OF TWO SUMMER HOSPITALS FOR BABIES.—On Saturday of last week, Sept. 14, the Boston Floating Hospital terminated its eighth season of work.

"During the summer the hospital has cared for 5784 day patients, given instruction to 4911 mothers, given to children not classed as patients 639 days of preventive care, and the work in the permanent wards is represented by 6432 days' treatment, a total service on board the boat of 17,766 days. In addition to this 1512 visits have been made to the homes of patients by the on-shore nurses and instructions and advice given, not only as to the convalescent care of the baby, but as to living and sanitary conditions. As a result of these visits 76 mothers have been found whose cases could best be cared for by other relief agencies, to which they were transferred.

"There were 82,532 food prescriptions sent out from the food laboratory, necessitating the use, among other things, of 7988 quarts of milk and 557 quarts of cream, 6257 quarts of barley water, 3200 quarts of whey and 560 quarts of buttermilk. In connection with the on-shore work 2766 quarts of milk were sent to patients in their houses. The steward's department also furnished to patients 3339 meals on orders from the doctors, in addition to the 46,522 meals prepared for the staff, employees and mothers."

On Saturday, Sept. 14, also, "Bonnie Bairns," a summer hospital for sick babies at Cohasset, Mass., closed its seventh season, during which it has cared for 87 patients, as against 85 last year.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Sept. 7, 1912, is 207, against 182 the corresponding week last year, showing an increase of 25 deaths, and making the death rate for the week 14.99. Of this number 101 were males and 106 were females; 202 were white and 5 colored; 142 were born in the United States, 62 in foreign countries, and 3 unknown; 48 were of American parentage, 134 of foreign parentage, and 25 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 16 cases and 1 death; scarlatina, 8 cases and 0 deaths; typhoid fever, 17 cases and 2 deaths; measles, 13 cases and 0 deaths; tuberculosis, 34 cases and 14 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 11, whooping cough 3, heart disease 29, bronchitis 0. There were 8 deaths from violent causes. The number of children who died under one year was 56; the number under five years, 67. The number of persons who died over sixty years of age was 55. The deaths in hospitals and public institutions were 87.

Deducting the deaths of non-residents, the total is 172. The corrected death-rate is then 12.46.

Cases of infectious diseases reported to the Boston Board of Health for the week ending Sept. 10, 1912, are: diphtheria 19, scarlatina 10, typhoid fever 16, measles 16, smallpox 0, tuberculosis 58.

The death rate of the reported deaths for the week was 15.57.

NEW YORK.

MOTHERS' PENSIONS.—The pensioning of poor mothers who are unable to support their children, is now being advocated in certain quarters. The worst sin of these children, it is argued, is that they were born in poverty, and yet the juvenile courts are compelled to take them away from their mothers, however worthy and industrious they may be, and send them to institutions where they come in contact with children committed there because of delinquency. In a recent article in the *New York Times* Justice Franklin Chase Hoyt of the Children's Court, whose opinion is certainly entitled to respectful attention, strongly urges this measure. "That a good mother," he says, "is the best guardian a child can have is certain; that her poverty should separate her from her child is tragic; that the State should pay more for the support of children in its institutions than it would be necessary to pay for their support in homes presided overy by their mothers would seem to be bad finance. The delinquent child is often the neglected child. There are two classes of neglected children—one actually, wilfully neglected, by parents or by guardians who might care for them if they would. Such children certainly are best off almost anywhere than in their homes. But the second class consists of those who are neglected because there are no funds at home with which to care for them, although there is the inclination. These are usually the fatherless. Cases come before me every day in which it is necessary to commit children to institutions for delinquencies quite plainly due to home conditions which might

readily be corrected if some small financial help could be obtained." In the connection it is interesting to note that the Legislature of Missouri has actually passed an act the object of which is to provide for the partial support of poor women whose husbands are dead or convicts, when such women are mothers of children under the age of fourteen years.

Increase of Vehicular Mortality.—The fatalities from street traffic, and especially the deaths from automobiles, appear to be constantly on the increase. Secretary Cornell of the National Highways Protective Society reports that in the streets of New York during the month of August 17 persons were killed by horse-drawn vehicles, as against 13 in the same month of last year, 1911, and 13 by trolley cars, as against 4 last year (an increase largely due to a disaster in the Borough of Queens); while 18 persons were killed by automobiles, as against 7 last year. The total number of deaths, 48, was therefore just twice that in August, 1911. In 1910 there were 376 deaths from vehicular traffic, in 1911, 423, and in 1912 the number will be alarmingly increased. In commenting on this increase Coroner's Clerk LeBrun recently remarked, "Our streets are becoming as perilous as a battlefield." The board of aldermen's committee on regulation of motor cars has expressed its agreement with the opinion of Secretary Cornell that, in order to check this great loss of life a larger number of motor cycle policemen is needed, so that reckless drivers of cars may more often be apprehended and prosecuted.

Recent Hospital Bequests.—By the will of the late Nathan Hermann, a retired member of the New York Cotton Exchange, $88,700 is left to charitable objects. Among the bequests are $5000 each to the Beth Israel Hospital, $5000 each to the Mount Sinai Hospital and the Montefiore Home and Hospital for Chronic Invalids, $2500 each to Lebanon Hospital, the Hospital for Deformities and Joint Diseases, the Sanitarium for Hebrew Children, and the Crippled Children's School, and $1000 each to the German Hospital and Dispensary, Jewish Maternity Hospital, the Mount Sinai Hospital Training School for Nurses, and the National Jewish Consumptives' Hospital at Denver, Col.

Psychic Pyrexia.—The effect of mental influence on physical conditions was strikingly shown recently in the case of Hilda Schneider, a little girl, thirteen years old, of East New York. The child had been promised a birthday party and twenty invitations were sent out, but before the date of the happy event she was suddenly attacked with appendicitis and taken to the Kings County Hospital, Brooklyn, where she was operated upon on September 2. Immediately on coming out of the ether she asked about her party, and after that she worried so much about the matter that her temperature gradually rose to 105 and her general condition became most unfavorable. Fearing that the issue might be fatal the surgeons realized that something ought to be done promptly to avert this, if possible, and accordingly determined on giving her her birthday party after all. They and the nurses provided the money for the purchase of ice cream and the other requisites of an approved children's entertainment, and on the 6th half a dozen of her little friends and the patient's mother came to enjoy them at her bedside. While Hilda herself could not of course join in the festivities, she became so happy in watching the enjoyment of the others, and realizing that her party was a *fait accompli*, that her temperature went down to normal, and there is now every prospect of her prompt recovery.

Reciprocity in Medical Licenses.—The New Jersey medical practice law having been so amended as to meet the standards of the New York law, it is gratifying to learn that the regents of the New York State University have now complied with the request of the New Jersey board of medical examiners to re-establish reciprocity in medical licenses between the two States. The lack of this has been felt by the profession to impose an unnecessary hardship.

Rathenau Gold Medal.—The president of the American Museum of Safety has just been notified that the Rathenau gold medal, which is well known in the European scientific world, has been placed at the disposal of the museum for award annually for the best device or process for safeguarding life and limb, or promoting health, in the electric industry. The competition is open to every country in the world, the only condition being that the device or process must be exhibited at the American Museum of Safety in New York. One medal will now be cast from the original die each year for the museum to award. This is the first time that a similar honor has been conferred upon an institu-

tion in this country, and it is regarded as an indication of the standing of the American Museum of Safety among European scientists.

VIOLATION OF QUARANTINE.—The steamship *Havana*, which sailed from Cuba on Sept. 4, did so without receiving from the United States consul-general the usual bill of health, which was refused because the vessel failed to comply with the United States public health regulations relative to bubonic plague. The *Havana* reached the port of New York on Sept. 11. She was found free from disease, but will be fumigated before being allowed to proceed. Report from Washington, D. C., states that this infraction of the quarantine laws is punishable by a fine of $5000.

HONORARY DEGREES AT FORDHAM UNIVERSITY.—On the occasion of its special extension course on nervous and mental diseases, Fordham University recently conferred honorary degrees on five of the lecturers taking part in the course. "The recipients were Dr. Horatio Robinson Storer of Newport, R. I., and Dr. Karl J. Jung, a graduate of the University of Zurich, Switzerland, and a resident of Zurich, degree of doctor of laws; Dr. Nicholas Achucarro of the University of Madrid, degree of doctor of science; Dr. Henry Head, chief surgeon of the London Hospital and editor of a journal of nervous diseases, degree of doctor of laws, and Dr. Gordon Holmes, associated with Dr. Head in London, degree of doctor of science."

Current Literature.

MEDICAL RECORD.

AUGUST 31, 1912.

1. VON RUCK, K. A *Practical Method of Prophylactic Immunization Against Tuberculosis, With Special Reference to Its Application in Children.*
2. MALONEY, W. J. M. A. *Modern Means of Investigating Mental Processes.*
3. BARTON, W. M. *Nasal Obstruction as an Early Symptom of Cardiorenal Disease.*
4. ERUSHEIMER, H. W. *Unusual Conditions Simulating Appendicitis.*
5. *COUGHLIN, R. E. *The Treatment of Puerperal Eclampsia.*
6. GREENE, J. B. *Removal of Adenoids as a Preventive Measure After Exposure to Measles.*

5. Coughlin describes his treatment of puerperal eclampsia and reports three cases. He considers veratrum viride a very important drug in the treatment of eclamptic convulsions. It should be given hypodermically in large doses at frequent intervals (fifteen minims of the tincture every fifteen minutes) until its physiological action is produced, viz. slowing of the pulse. When this has been accomplished the convulsions will have ceased. The pulse rate is lowered by direct action on the heart muscle and stimulation of the vagi. Veratrum viride also reduces arterial action and spinal action. When the convulsions are under control, the next step is rapid delivery.

[L. D. C.]

SEPTEMBER 7, 1912.

1. GRIFFIN, W. W. *False Gigantism, Complicated by Traumatic Ostoses.*
2. *HOFFMAN, F. L. *Research Work in Life Insurance Medicine.*
3. GIBSON, C. L. *Accessory Pancreas in the Gastro-intestinal Tract.*
4. REHFUSS, M. E. *The Treatment of Hyperacidity—The French Viewpoint.*
5. BOCHENE, G. F., JR. *Enlargement of Mediastinal Glands.*
6. OCHS, B. F. *A Plea for a More Careful Examination in Dermatology.*

2. Hoffman writes a long article on the various aspects of life insurance medicine which, he says, has now come to have a very large field, including not only risk selection but also conservation of human life in the individual and in the mass. Insurance companies are beginning to turn their attention toward this second aspect of the problem, thus combining broad humanity with good business policy.

[L. D. C.]

NEW YORK MEDICAL JOURNAL.

AUGUST 31, 1912.

1. MATAS, R. *The Cinematograph as an Aid to Medical Education and Research.*
2. GALLANT, A. E. *Wheat Bran.*
3. POTTENGER, F. M. *Blood Pressure in Pulmonary Tuberculosis.*
4. BRADDOCK, C. S., JR. *Bubonic Plague.*
5. FOSTER, G. B., JR., AND THEARLE, W. H. *Cutaneous Sporotrichosis.*
6. GREENE, H. M. *Arthritis Deformans.*
7. WILE, I. S. *School Lunches.*
8. MORTON, H. H. *Salvarsan Therapy.*
9. BORDEN, W. C. *A History of Surgical Hemostasis.*

SEPTEMBER 7, 1912.

1. AGRAMMONTE, A. *Yellow Fever a Strictly Human Disease.*
2. LOWENBURG, H. *Pneumonia in Children.*
3. KAPLAN, D. M. *The Wassermann Test.*
4. *MCCARTHY, J. F. *Vesical Neoplasms.*
5. STEINHARDT, I. D. *Ten Sex Talks to Girls.*
6. MARSH, E. H. *Endourethral Chancre.*
7. GRIFFITH, F. A *Completed Treatment for Tonsillitis.*
8. FELBERBAUM, D. *Massive Tuberculosis of the Liver.*

4. McCarthy writes an interesting article on tumors of the bladder, dealing especially with treatment. For small or moderate-sized growths, if accessible and benign, the monopolar spark through the cystoscope is especially adapted. The spark should not be applied in a cloudy field for under these circumstances it is inexact and dangerous. The author believes that this method is destined to supplant the suprapubic operation of scoring the mucosa. In the case of multiple benign growths the spark may be directed through the suprapubic opening. This treatment may prove to be of palliative value in cases which now appear to be beyond reach. Growths of an infiltrating character and suspiciously malignant should be promptly resected through the entire bladder wall at least two centimeters beyond the mass and when in close proximity to the ureteral orifice should include ureter transplantation.

[L. D. C.]

ARCHIVES OF INTERNAL MEDICINE.

AUGUST, 1912.

1. *SWAN, J. W. *The Influence of Carbonated Brine (Nauheim) Baths on Blood Pressure.*
2. *BROOKS, H., AND CARROLL, J. H. *A Clinical Study of the Effects of Sleep and Rest on Blood-pressure.*
3. FROTHINGHAM, C., JR. *Arterial Lesions Found in Persons Dying from Acute Infections, and Attempts to Produce Arterial Lesions in Animals by Non-Infectious Toxins.*
4. *BREED, L. M. *Some Clinical and Experimental Observations with a Saccharomycete.*
5. LUSK, G. *Note on "A Case of Pancreatic Diabetes Mellitus."*
6. *Illinois Pellagra Commission—Condensed Report, Part I.*

1. Swan made a study of the effects of carbonated brine baths on blood pressure in 81 cases of cardiovascular disease. He found that they were not constant. The systolic pressure was raised more often than lowered by the baths. There is no method of determining in advance whether a given treatment will be followed by a rise or fall. In 39 cases it was higher at the end than at the beginning of the course of treatment, in 34 cases lower. In fibroid myocarditis the pressure effect was inconstant; in one case there was an increase of 22 mm. Some cases of chronic nephritis and arteriosclerosis showed similar rise in blood-pressure, which would go to show that Nauheim baths are not without danger in such cases. The relief of symptoms which follows the baths is not dependent on the influence of the treatment on blood-pressure.

2. Brooks and Carroll made an interesting study of the effects of sleep and rest on blood-pressure. They found a fairly constant and rapid preliminary drop after the beginning of sleep (subsequent to and not caused by sleep). After reaching the low level the pressure began to rise again during sleep and during the day following to its maximum in the afternoon. This normal "blood-pressure curve" often does not occur in cases of circulatory decompensation.

4. Breed gives some observations made on pathogenic yeasts. A saccharomycete was demonstrated in the sputum of a number of patients with anomalous lung conditions, also in a tonsil membrane, a vaginal discharge and in pus from a skin abscess. It was mixed with other organisms in most cases but was found as the only apparent cause of infection in a few cases; moreover disappearance of this yeast was followed by relief of symptoms. The serum of four patients gave a positive agglutination test for the saccharomycete.

[L. D. C.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

AUGUST, 1912.

1. *FRIEDENWALD, J. A. *A Clinical Study of a Thousand Cases of Ulcer of the Stomach and Duodenum.*
2. *VANDERHOOF, D. *Diarrhea of Gastric Origin.*
3. BOWEN, J. T. *Multiple Subcutaneous Hemangiomas, Together with Multiple Lipomas, Occurring in Enormous Numbers in an Otherwise Healthy Muscular Subject.*
4. *STEVENS, A. A. *Malignant Disease of the Lung, with Special Reference to Sarcoma.*
5. *COOKE, R. A. *Paroxysmal Hemoglobinuria.*
6. KEBLEY, C. G., AND BEEBE, S. P. *A Case of Delayed Development in a Boy Treated with Thymus Gland.*
7. KING, J. M. *Acute Pancreatitis.*
8. BARRINGER, T. B. *The Effect of Cold Air Upon the Circulation in Healthy and Sick Individuals.*
9. ORR, T. G. *Leukocyte and Differential Counts in Ward and Open-air Treatment.*
10. DAYTON, H. *Fatal Pneumothorax Following Exploratory Puncture.*
11. *HASTINGS, T. W. *Tuberculin Therapy in Surgical Tuberculosis.*

1. Friedenwald's careful analysis of his large series of cases of gastric and duodenal ulcer is an important contribution to our statistical knowledge of the subject, although the conclusions reached do not differ essentially from those supported by other recent writers. Cases in which the diagnosis of ulcer seemed beyond question formed 7.8% of all cases of gastric disturbance. More than twice as many males were affected as females. Acidity was normal in 46%, increased in 30%, and diminshed in 23%. The average duration of symptoms was twelve years. Of symptoms the most constant was pain, present in 94%; epigastric tenderness was present in 90%, vomiting in 67%, hematemesis in 22% and melena in 51%. Of cases treated by the Leube method 72% were cured and 74% of these remained well, while of cases treated by the Lenhartz method 66% were cured, 77% of these permanently. 71% of the cases operated on were cured, 91% remaining permanently well.

2. Vanderhoof discusses the occurrence of cases of persistent diarrhea which he believes to be due to gastric anacidity. He reports 12 illustrative histories of patients complaining chiefly of diarrhea in whom anacidity was found to be present and in whom treatment of the anacidity resulted in cessation of the diarrhea. The treatment consisted mainly of administration of large doses of dilute hydrochloric acid before meals.

4. Stevens reports two cases of sarcoma of the lung and one of endothelioma of the pleura. According to statistics primary tumors of the lung form approximately 2% of all tumors. It is disputed whether carcinoma or sarcoma is the more frequent. Clinically the cases fall into three types, the first presenting the picture of a progressive consolidation of the lung, the second of stenosis of bronchi or trachea, and the third of pleurisy with effusion. The sputum may resemble currant jelly or prune juice, or may be profuse and fetid as in gangrene. Hemolysis is present in a majority. The pleural effusion in the later stages is hemorrhagic.

5. Cooke describes in detail important serological investigations on a case of paroxysmal hemoglobinuria with the conclusion that the serum of the patient contained a complex hemolysin capable of dissolving the red blood corpuscles of the patient himself or of other individuals when the mixture was first cooled and then warmed, to stimulate the conditions present when cooling of the extremity of the patient resulted in a paroxysm of hemoglobinuria. From the presence of a positive Wassermann reaction in this case and from other considerations it is probable that syphilis is the most important if not the only etiologic factor in the production of paroxysmal hemoglobinuria.

11. Hastings' article is a compendious summary of the historical development and present practice in tuberculin therapy, of interest to those who desire information as to different preparations and dosage, but with little evidence bearing upon the clinical value of the treatment.

[F. W. P.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

AUGUST, 1912.

1. *PETERSON, R. *Primary and End Results of Fifty-one Radical Abdominal Operations for Cancer of the Uterus.*
2. *TAYLOR, H. C. *The Radical Abdominal Operation for Carcinoma of the Cervix Uteri: With a Report of Twenty-eight Cases.*
3. TAUSSIG, F. J. *Prognosis in Radical Abdominal Operations for Uterine Cancer.*

4. MARTIN, F. H. *Gymnastics and Other Mechanical Means in the Treatment of Visceral Prolapse and Its Complications.*
5. GARCEAU, E. *Chronic Cystitis of the Trigone and Vesical Neck.*
6. *POLAK, J. D. *Indications for and the Type of Operation to Select in the Toxemia of Pregnancy.*
7. DAVIS, E. P. *Treatment of Acute and Fulminant Toxemia.*
8. *NEWELL, F. S. *The Treatment of Eclampsia.*
9. BALDY, J. M. *Prolapse of the Uterus.*
10. WARD, G. G. *A Further Report on the Relation of Thyroidism to the Toxemia of Pregnancy.*
11. GIBSON, W. S. *The Topography of the Hypophysis Cerebri.*

1. Peterson in 51 cases of abdominal operations for cancer of the uterus had a primary mortality of 19.6 per cent. In 40 cases of cancer of the cervix done this way, *i.e.* the radical abdomen operation, the primary mortality was 22.5 per cent. while in cancer of the fundus it was only 9 per cent. The percentage of permanent cases 62.5.

2. Taylor commenting on this same procedure states that our end results will never compare favorably with those from abroad until we are able to get our cases at an earlier stage of the disease, and that our justification for doing such a radical operation is in its moderate mortality and in the relief of symptoms in a disease otherwise hopeless.

6. Polak points out that in toxemia of pregnancy, in the early months, which produces hyperemesis, the changes within the liver lobule are degenerative and begin in the centre and extend outward toward the periphery. In eclampsia the lesion most frequently found is a peri-lobular thrombosis and a hemorrhagic necrosis in the portal spaces, from the periphery toward the centre and tissue destruction follows their wake. Thus we see that both pernicious vomiting and eclampsia are dependent upon progressive hepatic lesions with destruction of liver tissue. Therefore early termination of gestation, the cause of these lesions, is indicated as the first step in treatment.

8. Newell concludes that the treatment of eclampsia consists in (1) prevention of further absorption of toxins, *i.e.* by evacuation of the uterus. The author believes that Cesarean section is not the operation of choice in this condition. It is putting additional risk on the patient to perform a laparotomy on a patient whose excretory functions are deranged. (2) limitation of the damage by the toxins already in the system. (3) promotion of excretion of the toxins. (4) treatment of the patient independent of the disease. No. 2 is best accomplished by reducing high blood pressure by venesection and reduction of convulsions by large doses of morphia. Active cartharsis, stomach lavage and high colonic lavage should be employed until copious watery movements are obtained.

[E. H. R.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT No. 26.

JUNE 27, 1912.

1. BACH. *Glaucoma, Its Pathology and Treatment.*
2. *MARSCHALKO AND VESZPREMI. *Histological and Experimental Research on Death from Salvarsan.*
3. ROSENBERG. *Serodiagnosis of Cancer.*
4. KRAUS AND HOFER. *Bacteriolysis of Tubercle Bacilli in the Peritoneal Cavities of Normal and Tubercular Guinea-pigs.*
5. SCHAUMANN. *The Cause and Initial Symptoms of Pernicious Anemia.*
6. GÖRGES. *Improved Aspirin.*
7. ZEULZER. *The Cause of Death from Hormonal.*
8. KRAUSS AND SAUERBRUCH. *Intracranial Epidermoid.*
9. EBSTEIN. *Tophi of the Eyelids.*
10. BIBERFELD. *New Pharmacopeial Preparations.*
11. MESERNITZKY. *Radium Emanations.*
12. ENGELEN. *Local Treatment with High Frequency.*
13. THIELHABER. *Spontaneous Cure of Carcinoma.*

2. A detailed report is given of a case ending fatally after the intravenous administration of salvarsan. The patient died with symptoms of encephalitis, and examination of the brain showed multiple hemorrhages resulting from stasis and thrombosis. No gross changes were found in the nervous system.

Rabbits were treated with proportional doses of salvarsan, and 50% died, showing symptoms and pathological changes similar to those found in the case reported.

The authors conclude that the tolerated dose of salvarsan is smaller than at first supposed; 0.005 G. per kilo body weight being the maximum safe dose. They believe that the smaller doses are as effective as the larger ones.

No. 27. JULY 4, 1912..

1. KOCHER. *Goitre and Its Treatment.*
2. RIEDEL. *Late Neuralgia After Amputation of the Thigh.*
3. EDELMANN AND KARPEL. *Eosinophilia of the Urinary Passages During Asthma.*
4. LAUDSBERGEN. *Acute Psychosis with Acute Pemphigus.*
5. PETERSON. *Carbohydrate Days in the Treatment of Diabetes.*
6. HUISMANS. *The Diagnosis of Malignant Tumors of the Pleura.*
7. SLATOWERCHOWNIKOW. *The Coin Sound in Pleurisy with Effusion.*
8. RAETHER. *Muscular Rigidity over Pulmonary Lesions.*
9. KAESTNER. *Positive Ionization in Therapeutics.*
10. MEIROWSKY. *Paradoxic Serodiagnosis.*

[C. H. L., JR.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT. No. 32.

AUGUST 6, 1912.

1. *VOLHARDT, F. *Artificial Pneumothorax in Pulmonary Tuberculosis and Bronchiectasis.*
2. *HAMMER, C. *The Complement-binding Reaction in Tuberculosis.*
3. DIEUDONNE, A., AND BAERTHLEIN, K. *Selective Media for Cholera.*
4. BRENDEL, G., AND MÜLLER, H. *Hecht's Modification of the Wassermann Reaction.*
5. PRINGSHEIM, J. *Modification of Attacks of Hemoglobinuria by Means of Cholesterin.*
6. *V. LEUBE. *Combating Tuberculosis in Childhood.* (Concluded.)
7. WEBER, L. W. *The Clinical Conception of Epilepsy.* (Concluded.)
8. FRIEDBERGER, E. *The Anaphylactic Reaction of the Lungs.*

1. Volhardt reports the results of treatment by artificial pneumothorax in 56 cases of phthisis, bronchiectasis and lung abscess. He makes many interesting points which can be appreciated only by reading his article. His cases were selected from a total of 789. Of the 56, for various reasons, 22 proved to be unsuited, leaving 34 or 4.3 per cent. of the whole number in which the treatment was believed to have been well chosen.

The conclusions follow: it is important that there should be no firm adhesions between the layers of the pleura, a point difficult to determine, and that the process should be unilateral or nearly so. Unilateral cavernous phthisis offers the best opportunity and caseous pneumonia may do well. Severe hemoptysis may be stopped. Lung-abscess and galloping consumption are unsuitable. Severe bronchiectasis without pleural adhesions is particularly suitable but requires prolonged treatment.

The benefits observed were reduction of expectoration, decrease of toxemia, improvement of general con-

dition and sometimes apparent cure even in cases that had seemed beyond hope. The patient sooner returns to work and is put to less expense than by sanatorium treatment.

2. The writer tabulates his work and reaches the conclusion that the complement-binding reaction in tuberculosis has fallen into undeserved disrepute and that it may yet prove valuable for diagnosis.

6. The following points are emphasized by the writer—that in all probability most children, of tuberculous parents, are born free from tuberculosis and special efforts should be made to keep them so; that skin reactions should be tried systematically on these children at intervals and that from the time when they first show a positive reaction tuberculin treatment should be instituted and repeated at intervals. If then demonstrable but not hopeless tuberculosis appears the child should be segregated in a sanatorium with opportunity for schooling. All schools for children should be regularly inspected by physicians and hygienically conducted. Protection of children is the most important duty in the war against tuberculosis.

[G. C. S.]

No. 33. August 13, 1912.

1. Meyer-Betz, and Gebhardt, T. *Röntgenological Studies of the Effects of Laxatives on Healthy Humans.* (To be concluded.)
2. *Lichtenstein. *The Expectant Treatment of Eclampsia.*
3. Dreyfus, G. L. *Experiences with Salvarsan.* (To be concluded.)
4. *Roemheld, L. *What is the Value of the Wassermann's Reaction in Practice?*
5. Bibergeil, E. *Clubfoot.*
6. Borchers, E. *Diagnosis and Treatment of Fistula of the Chin.*
7. Hohmann, G. *Fractures of the Finger.*
8. Kretschmer, M. *Treatment of Scarlet-fever and Measles with Eucalyptus.*
9. Stoffeld. *Phenyldimethylpyrazolonamidomethansulphon-acid Sodium for Acute Rheumatism.*
10. Häner. *A Case of Tetanus Traumaticus Cured with Antitoxin Hoechst.*
11. Abelin, J. *Demonstration of Mercury in the Urine.*
12. Fischer, C. *A Color-reaction of the Skin over Tuberculous Parts of the Lungs.*
13. Wiedemann. *Danger of Anaphylaxis in Practice.*

2. Lichtenstein reports the results of treating a considerable number of cases of eclampsia by means of narcotics and venesection. The results are far better than those formerly obtained in the same clinic by the usual operative means.

Evidence is adduced to show that the blood-loss at operation causes the beneficial results thus obtained and doubts are cast on the placental origin of the poison for eclampsia.

4. The writer warns all against basing a diagnosis on a positive Wassermann test or giving one up on account of a negative test. The Wassermann test is a valuable link in the chain of diagnosis and an important confirmation, nothing less and nothing more.

[G. C. S.]

No 34. August 20, 1912.

1. Zeller, A. *Treatment and Cure of Cancer by Internal and External Medication.* (To be concluded.
2. *Dreyer, L. *Diagnosis of Interval-appendicitis.*
3. Schmid, H. H. *Obstetrical Details.*
4. Jung, P. *Sacral Teratoma as an Obstacle to Birth.*
5. Heermann, G. *Mesbe, a New Drug for the Treatment of Tuberculosis.*
6. Schreiber, E. *Dosage and Use of Neosalvarsan.*
7. Milturi, H. *Experiences with Noviform.*
8. Hergenhahn, E. *Comparative Test of Röntgen Apparatus.*
9. Trendelenburg, F. *Remarks on Dr. Hans Kehr's Paper on "Duodenal-ulcer."*
10. Lang. *Epidemiology of Appendicitis.*
11. German. *Epidemiology of Perityphlitis.*
12. *Dreyfus, G. L. *Experience with Salvarsan.* (Concluded.)
13. *Meyer-Betz, F., and Gebhardt. *Röntgenological Status of the Effect of Laxatives on Normal Humans.* (Concluded.)

2. Three cases which reacted positively and in which the diagnosis of appendicitis was confirmed by operation and four more cases in which the test was negative, are reported to show the value of inflating the cecum for the diagnosis of interval appendicitis.

12. The writer concludes a rather long article on the treatment of syphilis with salvarsan and mercury. His views and his method are interesting but unsuitable for abstracting.

13. The effect of various cathartics has been watched by the writers by means of the x-ray. Their conclusions, being based on a small number of cases, still need confirmation. Senna seemed to act only on the large bowel in which it increased peristalsis and hastened evacuation. Calomel caused increase of peristalsis and thorough emptying of the whole intestine. Aloes, caused a condition in the large intestine resembling its contraction in spastic constipation.

[G. C. S.]

Berliner Klinische Wochenschrift. No. 24.

June 12, 1912.

1. Touton. *The Injection of Neosalvarsan Without Reaction. The Avoidance of Lack of Solution and Mixed Treatment in Syphilis.*
2. *Kehr, H. *What Are the Indications for Medical and Surgical Treatment of Gall-stones which Must Be Observed According to the Researches of the Pathologist Aschoff?*
3. Schirokauer, H. *The Oatmeal Cure and the Sugar Content of the Blood in Diabetes Mellitus.*
4. Davidsohn, H. *A Research Concerning the Fat Splitting Ferment in the Gastric Juice, and Directions for a Quantitative Estimation of the Same.*
5. Golodetz, L., and Unna, P., Jr. *Peroxydase and Katalase in the Cell.*
6. Schloss, E. *The Apparent Specific Action of Salts.*

2. The author believes that there is a very distinct place for the physician in gall-stone therapy. First by recognizing that absolutely sterile stones may form in a sterile gall-bladder from the cholesterin contents of the bladder, and using prophylaxis to combat the formation of these stones. Pregnancy, obesity, and possibly heredity predispose to a cholesterin diathesis. He points out that it is not the presence of the gall-stone that causes the trouble, but rather the obstruction to the proper outflow of the bile, and thus its consequent infection. Although he does not believe that there is any drug which can dissolve the stones, he does believe that the bile may be kept freely flowing, with the aid of massage, proper diet, and exercise, even in the presence of stones.

He believes that operation should be undertaken only when absolute indication exists in acute cholecystitis; in seropurulent, chronic cholangitis; acute septic cholecystitis; perforation of the gall-bladder, or the gall passages; in early carcinoma of the gall-bladder; and also in the later cases when life is directly threatened by the mechanical course of the disease.

[J. B. S., Jr.]

No. 25. JUNE 17, 1912.

1. *MUNZER, A. *The Etiologic Importance of Emotional Disturbances on Diseases of Organs with an Internal Secretion.*
2. *EPHRAIM, A. *The Early Diagnosis of Primary Tumors of the Lung.*
3. GENNERICH, W. *The Etiology of Nervous Relapses, and Treatment with Neosalvarsan.*
4. ROSENTHAL, O. *Salvarsan.*
5. BOEHNCKE, K. E. *The Importance of Salvarsan for Increasing the Effect of Immunizing Serum.*
6. OBKIN, G. *Syphilis of the Heart.*
7. HAMPELN, P. *The Diagnosis of Echinococcus Cyst of the Lung.*
8. THOMSON, O., AND MAGNUSSEN, G. *Specific Antibodies in Echinococcus Disease.*
9. LINDEMANN, E. A. *Changes in the Biological Properties of the Tubercle Bacillus Inside and Outside of the Body.*
10. LAZARUS. *Enriching the Blood with Radium Emanations.*
11. WOSSIDLOL, E. *New Operating Instruments for the Posterior Urethra.*

1. This paper is a theoretical one, and is not based on any experimental evidence. The author believes that great emotions cause organic changes in the brain, and that these organic changes in turn affect the central mechanism controlling the glands of internal secretion. This pathologic change gives rise to the various diseases, such as exophthalmic goitre and acromegaly.

2. The author has diagnosed four primary malignant tumors of the lung during the last year, by means of direct bronchoscopy. Two of these cases had been mistaken for early tuberculosis, and the x-ray had confirmed the diagnosis. He believes that the procedure should be more widely used in doubtful cases.

[J. B. S., Jr.]

No. 26. JUNE 24, 1912.

1. STRAUSS, H. *The Use of Inulin in Diabetes.*
2. DE REVOREDO, G. *A Simple Method for the Estimation of the Acidity of the Stomach Contents.*
3. SCHLESINGER, E. *Complete Spasm of the Stomach Demonstrated by the X-ray in Cholecystitis and Cholelithiasis.*
4. MOHR, R. *The Action of Hormonal.*
5. GENNERICH, W. *The Etiology of Nervous Relapses, and Treatment with Neosalvarsan.*
6. MEYER, F. M. *A Supplement to the Article, "The Epiphanin Reaction in Syphilis."*
7. MUHSAM, R. *A Stab-wound of the Brain, Cured by Operation.*
8. AHMED, I. *The Diagnostic Value of Inclusions in the Leucocytes in Scarlet Fever.*
9. MICHAELIS, P. *Acute Nephritis Following the Injection of Iodine-menthol.*
10. LIESKE, H. *Medico-legal Questions.*

WIENER KLINISCHE WOCHENSCHRIFT. No. 35.

AUGUST 29, 1912.

1. KIRÁLYFI, G. *Benzol in the Treatment of Leukemia.*
2. GÜNTHER, G. *Swine Erysipelas in Man, With a Contribution to the Erysipeloid Question.*
3. KROKIEWICZ, A. *From the Field of Cancer Research. II. Autohemotherapy in Cancer.*
4. JAMPOLSKY, F. *Metastatic Ophthalmia After Tooth Extraction.*
5. ROSENFELD, S. *The Determination of Reciprocal Cancer.*

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

BAND 107. HEFT 4.

AUGUST, 1912.

1. TACHOU, P. *Investigations on the Nitrogen and Sodium Chloride Content of the Sweat of Nephritics.*
2. HANDRICK, E. *The Modification of the Resistance of the Red Blood Corpuscles by Hemotoxic Substances.*
3. FREUND, H. *The Clinical Course of the Infections with Bacillus Paratyphi B.*
4. *MATSUO, J. *Clinical and Serologic Investigations of Paroxysmal Hemoglobinuria, with a Contribution to the Knowledge of Isolysins.*
5. LOOCHE, S. *Report on Ten Cases of So-called Lymphatic Pseudoleukemia.*
6. *SCHOTT, E. *The Character of the Electro-cardiogram in Acute Parenchymatous Degeneration of the Heart-muscle.*
7. *WELLMANN, C. *Experimental Investigations on the Action Currents of the Diaphragm in Closed Pneumothorax.*

4. In the series of 11 cases of paroxysmal hemoglobinuria which Matsuo reports, four were women and seven were men. Exposure to cold was the supposed exciting cause in ten, overexertion in one. Four of the cases had acquired, and seven congenital, syphilis.

6. Schott reports, with graphic tracings, a clinical and experimental study of the electrocardiagram in acute phosphorus and arsenic poisoning.

7. Wellmann, making a further contribution to the theory of the paradoxical diaphragm movement, concludes that in closed pneumothorax the muscular parts of the diaphragm contract just as in the normal condition of the lungs, as shown by direct observation through the opened abdomen, and confirmed by the action current curve.

[R. M. G.]

Obituary.

CLINTON THOMAS DENT, M. C. CANTAB. F.R.C.S. ENG.

MR. CLINTON THOMAS DENT, who died in London on Aug. 26, 1912, was born in 1850. After receiving his education at Eton and at Trinity College, Cambridge, he entered St. George's Hospital Medical School in 1872, and in 1875 became a member, and in 1877 a Fellow, of the Royal College of Surgeons of England. In 1876 he was appointed house surgeon at St. George's Hospital, where from 1877 to '79 he served as demonstrator of anatomy and surgical registrar.

After a visit to Vienna for study in 1879, Mr. Dent returned to London, and in 1880 was appointed assistant surgeon at St. George's Hospital. In this post he served for fifteen years, during which time he continued his teaching as joint lecturer in physiology, lecturer in practical surgery, and demonstrator of operative surgery successively. His methods and manner as a teacher were original and sometimes erratic; but all his students were impressed by his earnestness and frankness, and by the illuminating keenness of his discrimination between the important and the unessential.

In 1895 Mr. Dent was made surgeon at St.

George's, and in 1907 he became senior surgeon of the hospital, a position which he continued to hold till the time of his death. Since 1898 he had been joint lecturer in surgery at St. George's Hospital Medical School. He was for some years also a member of the surgical staff of the Belgrave Hospital for Children, and later was appointed its consulting surgeon. Since 1904 he had been chief surgeon of the London Metropolitan Police. In 1908 he was Hunterian Professor in the Royal College of Surgeons of England, and in 1912 was elected its senior vice-president.

At the outbreak of the South African War in 1899, Mr. Dent went to Natal, where he served for a year as a civil surgeon and medical correspondent, sending home many valuable contributions on gunshot wounds and military surgery. He was a prolific writer on medical topics. He translated and edited Billroth's "Clinical Surgery," was the author of a work on "The Nature and Significance of Pain," and contributed many papers and articles to medical journals and to the transactions of the Royal Medical and Chirurgical Society.

Mr. Dent's literary activity was not limited to the field of medicine. His diversion was Alpine climbing, of which he did much in his younger years, and he contributed many papers on mountaineering to the *Alpine Journal*, besides writing a delightful volume, "Above the Snow Line," published in 1885. He joined the Alpine Club in 1882, and was its president from 1886 to 89. He was also an expert amateur photographer, and took many charming and valuable views not only in the Alps but in the Caucasus, where he did much important pioneer work of exploration.

In all that he did, Mr. Dent showed the same whole-hearted intensity, energy, and perseverance. As a man of independent wealth he was able to give his time largely to hospital service and teaching. He was beloved by his patients, and gave to them freely of his personal interest and sympathy as well as his professional skill and judgment. His death in the maturity of his power and efficiency is a grave loss to English surgery and to the hospital which he had served and loved so well.

Miscellany.

A ROLL OF HONOR.

In another column of this issue of the Journal, we comment editorially on the history and work of the United States Public Health Service. The number of surgeons composing this corps averages about 100, and their relatively high mortality in the line of duty is evidence of the special risks by which they are beset. The following list, compiled by an officer of the service, shows the evidence and mortality of various diseases among its surgeons during the relatively few years of its existence.

"Killed by accidents while on quarantine duty during the yellow fever outbreaks, accidents directly incident to work:

"Murray and Bratton.

"Contracted yellow fever on quarantine duty:

"Carter, Cobb, Wasdin, Fricks, Berry, Rucker, Von Eszdorf, Goldberger, Richardson, Parker, Guthrie, McKeon, Glozier, Waldo, Groenvelt, McAdam, Weightman (17).

"Died of yellow fever contracted on duty:

"Glozier, Waldo, Groenvelt, McAdam, Weightman (5).

"Contracted tuberculosis in line of duty, 11.

"Died: Prochazka, Decker, Devan.

"Contracted amebic dysentery on duty in Philippines, etc., 4.

"Permanently disabled, 1.

"Contracted typhoid from direct exposure on field duty or in laboratory, 5.

"Died: Richardson, Miller.

"Contracted smallpox in line of duty, 2.

"Contracted typhus fever while investigating occurrence in Mexico, 1.

"Contracted cholera in line of duty, 2.

"Died of Rocky Mountain spotted fever contracted in line of duty, 1."

This list is a roll of honor, and illustrates the price at which it is apparently inevitable that human progress in any direction must be purchased.

EUTHENICS, A NEW SCIENCE.

New sciences develop nowadays almost as rapidly as mushrooms over night. Some years ago gerastics was added to the list of medical specialties. At present eugenics, with its variant aristogenics, looms largest, at least in popular interest. The latest new science is that of euthenics, which deals with race improvement through environment. Eugenics is concerned with selection for the heredity of future generations, euthenics with the betterment of the present generation by modification of its environment. There seems a special appropriateness in this new science, since there is rather a tendency at present to overemphasize the importance of select germ-plasm. As a matter of fact there is ultimately no escape from the inexorable law of survival of the fittest. Only it does not necessarily follow that the type best fitted to a given environment will be the highest type. Man can modify his environment much more readily than his heredity, and euthenics aims by such judicious modification to establish such environments that the highest types will be best fitted to them and will therefore survive.

Correspondence.

AN OLD RETAINER OF THE RIGHT SORT.

Mr. Editor: The death of James Skillen, for so many years Janitor of the Harvard Medical School, both at its home on North Grove Street and later on Boylston Street, recalls an interesting personality, whose characteristics have already been the subject of a vivid sketch in the columns of the JOURNAL.

He was born in County Down, Ireland, May 13, 1840, and entered the service of the Massachusetts General Hospital as ward tender in 1864. His predecessor in that office was John Whitten, a stolid and stalwart compatriot, well remembered by many ex-members of the staff. The year following Skillen's appointment, Whitten retired permanently and after venturing to seek his fortune in the West, returned to Boston and died of a chronic ailment at the City Hospital.

Whitten's predecessor had been John Feenan, an efficient but hardly gentle nurser of the sick, who is associated with the earliest hospital recollections of the writer, and who probably dated back pretty nearly to the earliest days of surgery under anesthesia. Feenan left the hospital to go to the Soldiers' home in Pemberton Square during war time and remained there until his retirement.

A colleague of James Skillen was James Mains, who was appointed ward tender about the same time, having served on the "Aroostook" with Dr. John Homans in 1862. His long and faithful service at the hospital was terminated by a chronic illness which brought about his permanent retirement.

Another contemporary was Hugh Magee, who was born in Ireland in 1834, and entered the service of the hospital April 16, 1859, where he still holds a position, the dean of all the hospital employees; an honorable record.

After the tragic death of Andrews, the janitor of the Harvard Medical School, Skillen was selected by the late Dr. Henry J. Bigelow to take his place and served with satisfaction to his employers, both in the North Grove Street and Boylston Street buildings.

When the Harvard Medical School moved to its present site a new order of things was established and the old custom of a resident janitor was abandoned. Skillen's retirement came to him as a measure of relief to advancing years and infirmities. The response to a call for a memorial fund to be known as the "James Skillen Fund" was so prompt and enthusiastic that the sum of ten thousand dollars was quickly raised, and, after the death of his wife who survives him, will remain as a permanent memorial to a good and faithful servant, whom all the Harvard Medical Alumni of the present generation remember with interest and regard.

In the days of his career as ward tender at the Massachusetts General Hospital he not only administered to the comfort and welfare of the sick but in his own homely way gave many a useful hint and helping hand to the house officers and even occasionally, with tactfulness, to the surgeon himself.

Those were the days of simple organizations and much devolved upon these men that is now confided only to a medical assistant who has passed through special training for the purpose. Thus were developed strong and self-reliant characters, loyal supporters of their favored hospital's traditions; but maintaining a strongly conservative attitude towards the many innovations which the rapidly changing theories of the new surgery brought with them.

Serving, as James Skillen did, an apprenticeship in the clinical life of a great hospital, he came to be regarded by successive generations of medical students as one having a certain authority on medical subjects and thus was enabled to exercise considerable influence in his own way upon student life and habits. To his lasting credit it should be recorded that he was always for good standards, for no one knew so unerringly as "Jim" the combination that went to make up that entity, so difficult nowadays to define in words, a gentleman. The students seemed to have an instinctive knowledge of these characteristics and to recognize the quality of his criticisms deftly formulated by his keen native wit. He always welcomed the returning graduate most hospitably and never forgot a name. No graduating class ever omitted to include him in the class photograph.

It is pleasant to think that after the generation that enjoyed the benefit of his faithful and honorable service has passed away, his name will be permanently preserved in a memorial on the books of the university.

J. COLLINS WARREN, M.D.

58 Beacon Street, Boston.
September 5, 1912.

RECENT DEATHS.

DR. CHARLES SAMUEL BARTLETT, who died in Boston on Sept. 10, was born on May 22, 1848, the son of a dentist. He graduated from the Harvard Dental School in 1872, and since that time had practised his profession in this city. He was a widower and childless.

DR. CLARENCE EDGAR CARRUTH, a prominent physician of Cohoes, N. Y., and mayor of that city, died on August 31, at the age of fifty-six years. He was graduated from the medical department of the University of Vermont in 1880, and for a time served as City Physician. At the time of his death Dr. Carruth was visiting physician to the Cohoes City Hospital.

DR. CHARLES EDE, who died on Sept. 10 at Bramley, in Surrey, England, was born in 1823. He entered the British naval medical service in 1845, and was surgeon to the relief expedition sent in search of Sir John Franklin, for which he was awarded the Arctic medal.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, SEPT. 7, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	17	3
Chicago	—	—	Waltham	6	1
Philadelphia	—	—	Brookline	3	—
St. Louis	—	—	Chicopee	5	2
Baltimore	—	—	Gloucester	7	2
Cleveland	—	—	Medford	7	2
Buffalo	—	—	North Adams	9	2
Pittsburgh	—	—	Northampton	5	—
Cincinnati	—	—	Beverly	3	—
Milwaukee	—	—	Revere	0	—
Washington	—	—	Leominster	3	1
Providence	—	—	Attleboro	5	1
Boston	207	67	Westfield	11	4
Worcester	38	17	Peabody	—	—
Fall River	34	17	Melrose	1	—
Lowell	41	19	Woburn	4	2
Cambridge	33	11	Newburyport	5	1
New Bedford	34	20	Gardner	—	—
Lynn	26	11	Marlboro	1	0
Springfield	30	9	Clinton	2	1
Lawrence	28	18	Milford	—	—
Somerville	20	9	Adams	2	2
Holyoke	14	7	Framingham	—	—
Brockton	8	5	Weymouth	1	—
Malden	5	1	Watertown	2	0
Haverhill	17	6	Southbridge	5	3
Salem	—	—	Plymouth	—	—
Newton	—	—	Webster	2	0
Fitchburg	17	9	Methuen	—	—
Taunton	18	6	Wakefield	1	—
Everett	7	4	Arlington	2	1
Quincy	—	—	Greenfield	6	3
Chelsea	5	1	Winthrop	7	—

Original Articles.

THE FILTERABLE VIRUSES, A SUMMARY.*

BY S. B. WOLBACH, M.D., BOSTON.

Assistant Professor of Bacteriology, Harvard University Medical School.

THE list of diseases due to the so-called filterable viruses includes many of the most important diseases of man and animals. Our knowledge of the existance of filterable viruses dates from 1898, and some idea of the activity in research, stimulated by the finding of the first filterable virus, is given by the number of diseases —thirty—now known to be caused by them.

By the filterable viruses we mean microörganisms which will pass through filters, the pores of which are too small to give passage to bacteria. Such filters are the well-known Berkefeld filter, made of diatomaceous earth, and the Chamberland filter, made of unglazed porcelain. Both types of filters have been used for many years for the purpose of separating bacteria from their products of growth. Bacteria-proof filters furnish an important means of studying the toxins, which may be removed by filtration from cultures of bacteria, and from lesions where the specific cause has not been cultivated.

In 1898 Læffler and Frosch, while trying to obtain toxic material for immunity experiments, from lesions of foot and mouth disease, discovered that the virus of the disease would pass through the finest porcelain filters, and this observation marks the beginning of the series of investigations which have been made with respect to the filterability of viruses. Independently and shortly after Beijerinck discovered that a disease of the tobacco plan, the mosaic disease, was produced by a virus which would pass through the finest porcelain filters. He believed the virus to be in a fluid state "contagium fluidum," and through reasoning, not now tenable, convinced himself that living matter could exist in an unorganized or fluid state. Following Beijerinck's publication came one by Iwanowski, who made and substantiated the claim that he had previously, in 1892, demonstrated the filterability of the virus of mosaic disease. From this time on data respecting the filterability of viruses accumulated rapidly.

The term "ultramicroscopic" is often used as synonymous with "filterable," but filterability does not necessarily mean that the virus cannot be made visible in some stage of its growth, or by methods of illumination now employed. There is one virus—that of the pleuropneumonia of cattle—which passes through the Berkefeld and coarser porcelain filters, which may be seen by direct observation with the best optical equipment, using transmitted light, with a magnification of 1500 diameters. The dark field method of illumination and the ultramicroscope, of course, will demonstrate particles in fluid which are but a few times larger than protein molecules. The delicacy of the ultramicroscope is such that repeated distillation in silver vessels is necessary to obtain water free from particles which disperse light. With this method of illumination small particles appear as luminous points, and it is, of course, impossible to distinguish minute organisms, such as filterable viruses, from the myriads of particles which are necessarily contained in fluids available for study.

The possibility of studying the visible viruses by direct methods of illumination seems to be hopeless inasmuch as the very nature of light limits the size of objects that may be studied to two-tenths of a micron. Effort to overcome this difficulty has resulted in the apparatus which employs light of short wave-length—ultra-violet light having half the wave-length of yellow light. This actually doubles the resolving power of the microscope, reducing the limit of size of particles that may be studied to about one-tenth of a micron. But, as observations with the ultra-violet apparatus can be made only through the medium of photographic plates, it has, as yet, added nothing to the study of the filterable viruses.

There are a few facts which offer encouragement for effort toward demonstrating the filterable viruses. Novy, in 1906, claimed to have shown that the trypanosomes of rats (T. Lewisi), and of the African cattle disease (T. brucei), and the spirochete of European relapsing fever in man have stages which pass through the Berkefeld filters. The details of his experiments are very meager, and the control methods employed are not stated. Bruce, who worked with cultures of the rat trypanosome, with blood of animals infected with the same and with cattle (T. evansi and T. brucei) and human (T. gambiense) trypanosomes, was not able to confirm Novy's results. Later he attempted to show the existance of a filterable state in tsetse flies which were infected with T. gambiense, but with negative results. The important bearing of this question upon the subject of filterable virus impelled me with Mr. Stevens to repeat Novy's experiments with trypanosomes, with entirely negative results. Breinl and Kingshorn, who worked at the Liverpool Schools of Tropical Medicine, claim to have obtained infective filtrates from the blood of animals containing the spirochete of African relapsing fever. As the spirochete of African relapsing fever has an unknown cycle of development in the intermediate host—a tick—these results are compatible with the failure to optically demonstrate this stage. Borrel, working with lymph from the lesions of sheep-pox, obtained a minute flagellated protozoan in filtrates, and he showed that this organism, which he called "Micromonas mesnili," would pass through bacteria-proof filters, at least in some stage of its development. There is also another protozoan which has a filterable stage. The only published reference to it is in a

* Read at the Annual Meeting of The Massachusetts Medical Society, June 11, 1912.

discussion by Professor Lœffler, who said that Dr. Spiegel, working in Emmerich's laboratory, has shown that spores of a flagellate, belonging to the genus Bodo, as defined by Dofflein, would pass through Berkefeld filters which prevented the passage of Bacillus prodigiosus, even after an hour's filtration. It, therefore, seems possible that at least a few of the filterable viruses, causing disease, may have a stage which is visible by means of the ordinary microscope and particularly those viruses which are transmitted by intermediate hosts, and which are, therefore, probably spirochetes or protozoad.

I have grouped the diseases produced by filterable viruses according to the nature of the host. The largest list is that of domestic animals. It includes pleuropneumonia of cattle, African horse sickness, sheep-pox, cattle plague, hog cholera, swamp fever of horses, an infectious disease of sheep and goats, causing suppression of milk (infectious agalactia), catarrhal fever of sheep, or blue tongue, distemper of dogs, infectious stomatitis papulosa of cattle, guinea-pig epizoötic, a peculiar paralysis of guinea pigs and a rat disease. A few diseases are common to man and animals, or at least are intercommunicable. These are foot-and-mouth disease, rabies, and vaccinia and variola. The diseases peculiar to man are yellow fever, molluscum contagiosum, dengue fever, verruca vulgaris, trachoma, sand fly or three day fever, poliomyelitis, typhus fever, measles and scarlet fever. In birds there are: fowl pest, fowl diphtheria, which has recently been shown to be due to the same virus as epithelioma, contagiosum of fowls, and the chicken sarcoma, which was recently described by P. Rous. In plants there is so far only the mosaic disease of the tobacco plant. The following list contains, as far as I have been able to gather, the important data regarding the properties of the different filterable viruses. Their behavior towards physical and chemical agents is shown in the accompanying table and inspection will show how incomplete this knowledge is.

ANIMALS.

PLEUROPNEUMONIA OF CATTLE.[28, 29, 30, 31]

Characterization. A very infectious, epizoötic disease of high mortality limited to bovine species, and characterized by simultaneous inflammation of the pleuræ and lungs. Suppurative processes in other organs may occur.

Transmission. By contact and by material infected from discharges from the respiratory tract. The virus is not contained in the blood but only in the tissues affected.

The filterability of the virus was discovered by Nocard in 1899. It passes through Chamberland F filter, but not through grade B. The microorganism has been cultivated, first by Nocard and Rous. It is an exceedingly polymorphous organism. The commonest forms visible at 1500 diameters are spirillar and coccoid in appearance. Curious star-like forms have been reported. The virus retains its virulence in cultures for 6 to 8 days without loss; in glass capsules at 12° C. for one year, frozen at — 5° to — 6° C. for one year. It resists strong glycerine and ½ per cent. carbolic acid solutions. It is destroyed by a temperature of 58° C.

Protective inoculations with pure cultures are successfully practiced. Immunized animals give a slightly protective serum which does not agglutinate or produce lysis of the parasite.

AFRICAN HORSE SICKNESS.[8, 9]

Characterization. An acute infectious febrile disease of horses, with edema about the eyes and neck. Recovery or death occurs in a few weeks. Death is usually due to pulmonary edema.

Transmission. Probably by biting insects; experimentally by Anopheles and Stegomyia, and by ingestion of the virus. The filterability was discovered by MacFadyean in 1900. The virus passes through the Chamberland B filter. It resists thorough drying at body temperature, moist heat and 75° C. for ten minutes and putrefaction for two months. It resists 25 per cent. glycerine solutions for three weeks. It is destroyed in solutions of blood and water by incubation at body temperature. No cultures have been obtained. One attack confers immunity but not against large doses of the virus. Artificial immunity is successful through injection of increasing doses of the virus mixed with immune serum.

SHEEP-POX.[10, 11]

Characterization. An acute febrile contagious disease of sheep, enzoötic in Europe, Africa and Asia, characterized by a generalized eruption of papules, vesicles and pustules. Usually not fatal.

Transmission. Contagious. The virus is found in the cutaneous lesions. The filterability was discovered by Borrel in 1902. The virus passes through the Chamberland filters F^4 and F^6. It is very resistant to drying and retains its virulence for two years if kept in a cool, dark place. It withstands freezing at — 12 to — .15° C. for two months, 50 per cent. glycerine for twelve days, 3 per cent. boric acid, 2 per cent. salicylic acid and 10 per cent. chloride of lime. It loses its virulence progressively when heated at 48° C. It is destroyed by putrefaction, 1¼ per cent. carbolic acid, 2½ per cent. sulphuric acid and iodine at 1:10,000 dilution.

Cultivation has not been achieved. Inclusions have been described by Bosc, similar to those in variola.

Immunity is complete after recovery. Protective vaccination is successful. Partial passive immunity is achieved by injections of serum from immunized sheep.

CATTLE PLAGUE.[12]

Characterization. An acute, febrile disease of cattle with crupous-diphtheritic inflammation of the mucous membranes, rapid emaciation and

bloody diarrhea. Death usually occurs in four to seven days or slow recovery.

Transmission. Takes place by contact and contamination of food with exudate or excreta.

The virus is found in the blood, organs, excreta and discharges from affected surfaces. Its filterable nature was discovered by Nicolle and Adil-Bey in 1902. It passes through the Chamberland F filter.

The virus resists drying for four to twelve days, putrefaction and ½ per cent. carbolic acid when added to blood. The virulence is maintained for two to three months on hay in dark places. It is destroyed by distilled water in four to five days, glycerine in eight days, equal parts of bile in two hours, by heat at 58 to 60° C. at body temperature in blood in two to three days. Two per cent. carbolic acid and 1:1000 corrosive sublimate are effective disinfectants. The virus has not been cultivated.

Immunity follows recovery from an attack; artificially it is accomplished by the injection of small doses of material containing the virus. Passive immunity has not been achieved.

Hog Cholera.[15]

Characterization. An acute, highly contagious disease communicable only to hogs, characterized by fever, diarrhea and rapid emaciation. The intestinal lesions are characteristic but are probably due to secondary invasion by Bacillus suipestifer.

Transmission. Contagious. The virus is in the blood; its filterability was suggested by de Schweinitz and discovered by Dorset, Bolton and McBryde in 1905. It passes through Chamberland filters B and F.

The virus resists drying for three days, preservation at room temperature in liquids for ten to fourteen weeks, freezing at — 18° C., 5 per cent. glycerine for eight days and 1:1000 corrosive sublimate for eight days. It is destroyed by heat at 60° to 70° C. in one hour, in the dry state at 72° to 76° C. in one hour, a 2.5 per cent. formaline solution destroys it in fifteen days, a 2.5 per cent. antiformin solution in two hours and putrefaction in eight days. It has not been cultivated. Immunity is complete after recovery. Artificial active immunity and partial passive immunity have been achieved by injections of material containing the virus and by sera from immune hogs respectively.

Swamp Fever of Horses.[14, 15, 16, 17]

Characterization. An infectious, chronic anemia of horses with fever, prevalent in wet regions of Europe and America. The disease is usually fatal.

Transmission. Probably only by an intermediate host. Experimentally only by injection of blood from an infected horse. It is not communicable to other animals.

The filterability of the virus was shown by Vallée and Carré in 1904. It passes through the Chamberland F and B filters. The virus resists drying and putrefaction. It is destroyed by a temperature of 58° C. in one hour and by freezing at 0° C. in seven weeks. It has not been cultivated. Inclusions in the liver have been described by Ballah,[16] but they are not specific for the disease. There are no observations on immunity to the disease.

Infectious Agalactia of Sheep and Goats.[3, 18]

Characterization. An infectious febrile disease of goats and ewes in Italy with local manifestations in the eyes, joints, and udder; usually results in permanent loss of milk and blindness or death.

Transmission. By contact. The filterability of the virus through Berkefeld filters was discovered by Celli and De Blasi in 1904. The virus is found in milk. It has not been cultivated.

Catarrhal Fever (Blue Tongue) of Sheep.[19]

Characterization. An acute infectious, febrile disease of sheep in Africa; not communicable to other animals, and characterized by congestion and edema of the mouth parts and around the coronets of the feet. Mortality 5 to 30 per cent.

Transmission. Most probably by an intermediate host, possibly by contact. The virus which is found in the blood was shown to be filterable through Berkefeld filters by Robertson and Thieler in 1905 (quotation reference 19). The virus resists 25 per cent. glycerine with ¼ per cent. carbolic acid at room temperature for two years, and 50 per cent. glycerine for ten days. In blood it survives 467 days. It resists putrefaction, carbolic acid of less than 2¼ per cent., 2 per cent. boric acid for seven days and ¼ per cent. formaline for twenty-five days. It has not been cultivated. Immunity follows recovery. A curative serum is obtained from immunized sheep.

Infectious Stomatitis Papulosa of Cattle.[5, 21]

Characterization. A benign infectious disease of cattle characterized by a vesicular eruption in the mouth.

Transmission. The natural transmission is not known. It probably only occurs directly by way of the mouth. Experimentally: injection of blood from a case will convey the disease. The filterable nature of the virus was discovered by Ostertag and Bugge in 1906. The virus passes through Chamberland filters; it has not been cultivated. The properties of the virus are undetermined. Artificial immunity has not been achieved. One attack probably gives immunity.

Guinea Pig Epizootic.[22]

Characterization. A very fatal epizoötic among guinea pigs observed by Petrie and O'Brien. The disease, though due to a filterable virus which circulates in the blood, is complicated by an intestinal infection with a bacillus which the authors cannot distinguish from Bacillus suipestifer.

The properties of the virus have not been determined. It has not been cultivated. The filters used were Berkefelds.

GUINEA PIG PARALYSIS.[23]

Characterization. This disease is characterized by fever, paralysis of the bladder and hind quarters and emaciation. It lasts from three days to three weeks. The only account of this disease is a short communication made by Römer[23] at the International Congress on Hygiene in Dresden, 1911.

The pathological changes are somewhat similar to those in poliomyelitis of man. The virus passes through Berkefeld filters. It resists 50 per cent. glycerine for ten days. No inclusions are reported. Culture experiments were fruitless.

RAT DISEASE.[24]

At the eleventh annual meeting of the American Association of Pathologists and Bacteriologists, Novy and Perkins described a disease of rats due to a filterable virus. This virus passes through the finest porcelain filters and cannot be deposited by the most powerful centrifugalization. The virus is in the blood. The account of this disease and virus has not been published.

MAN.

YELLOW FEVER. [25], [26]

Characterization. An acute febrile disease with severe blood destruction, endemic in tropical countries.

Transmission.. By mosquitoes, the Stegomyia fasciata. The virus is found in the blood only during the first three days of the disease. "An interval of about twelve days or more after contamination appears to be necessary before the mosquito is capable of conveying the infection."

The filterable nature of the virus was discovered by Reed and Carroll and their associates in 1901. The virus passes through Berkefeld and Chamberland B filters. It is destroyed by a temperature of 55° C. in ten minutes, and by exposure to the air at a temperature of 24° to 30° C. in forty-eight hours. One attack confers complete immunity. Passive immunity has not been achieved.

MOLLUSCUM CONTAGIOSUM.[27]

Characterization. Infectious epithelial tumors which undergo a central colloid degeneration, thus giving rise to the "molluscum bodies," which may be squeezed out as small, hard white masses. It is a purely local infection.

Transmission. By contact, probably requiring a break in the epidermis for entrance of the virus.

The filterability of the virus was discovered by Juliusberg in 1905. It passes through Chamberland filters (grade not stated). It is found in the degenerated epithelium.

DENGUE FEVER.[32], [26]

Characterization. An infectious febrile disease of the tropics, characterized by an initial fever with erythema and rheumatoid pains in the joints, a short interval of well being, a terminal fever similar to the initial and crisis. The whole disease lasts from six to twelve days. The mortality is very low.

Transmission. By mosquitoes—the Culex fatigans. The virus is in the blood stream. Its filterability was discovered by Ashburn and Craig in 1907. It passes through Berkefeld filters which are impervious to Micrococcus melitensis. The properties of the virus are unknown.

One attack of the disease usually gives immunity for one to a few years. The possibilities of passive immunity have not been touched.

VERRUCA VULGARIS.[1], [2]

The filterable nature of the virus is claimed by Ciuffo. It is said to pass through Berkefeld filters N and W. (The original papers are not accessible to the writer. Vallillo gives a meager account and the references to the original papers.)

Cultures have not been obtained.

TRACHOMA.[33], [34]

Characterization. An infectious, inflammatory disease of the conjunctiva characterized by its resistance to treatment and the production of macroscopic nodules of lymphoid tissue in the palpebral conjunctiva.

Transmission. By contact with the discharges from the conjunctiva. The filterable nature of the virus was discovered by Bertrelli and Cecchetto in 1908. The monkey is susceptible. The virus passes through Berkefeld filters. It has not been cultivated nor have its properties been determined in regard to physical and chemical agents.

SAND-FLY FEVER OR THREE DAY FEVER.[35]

Characterization. A benign fever of all tropical countries of three days' duration.

Transmission. By the sand-fly—Phlebotomus pappataeii.

The virus is found in the blood during the first day of the fever. Its filterability through Berkefeld filters was discovered by Doerr in 1908. It may be preserved outside the body for three and one-half days, but its other properties have not been determined.

Cultures have not been obtained.

Immunity. Complete after one attack. No effort has been made toward establishing passive immunity.

POLIOMYELITIS.[36], [37], [38]

Characterization. An acute infectious febrile disease of children and young adults. Characterized by a rapid atrophic paralysis of groups of skeletal muscles.

Transmission. Unknown. Experimentally by intracranial and intraperitoneal inoculations of the virus. The virus is most concentrated in the central nervous system, but is found also in various organs, the nasal mucosa and the blood. Natural transmission possibly occurs through an intermediate host.

The filterability of the virus was discovered independently and almost simultaneously by Lentz, Landsteiner and Levaditi, and Flexner and Lewis in 1909. It passes through Berkefeld and Chamberlain filters.

Cultivation of the virus has not been achieved. The virus resists glycerine for a month, drying over caustic potash, freezing at — 2° to 4° C., for weeks, autolysis of tissue and growth of molds. It is destroyed by a temperature of 45° to 50° C. in one-half hour. It is easily destroyed by antiseptics; 1 per cent. solutions of hydrogen peroxide and menthol are effective.

There are no cell inclusions characteristic of the disease.

Artificial immunity has been achieved though injections of graded doses of the virus. Flexner and Lewis have obtained a slight degree of passive immunity in monkeys.

Measles.[41]

The filterability of the virus was discovered by Goldberger and Anderson in 1911. The virus is found in the blood, buccal and nasal secretions. It passes through Berkefeld filters. The disease is communicable to monkeys.

The virus resists drying for twenty-four hours, preservation at 15° C. for twenty-four hours and freezing for the same length of time. It is destroyed by a temperature of 55° C. in fifteen minutes. It has not been cultivated. There are no specific inclusions. Immunity follows recovery; no work on producing passive immunity has been reported.

Typhus Fever.[39, 40]

Characterization. An acute infectious disease occurring in epidemics, characterized by suddenness of onset, a macular eruption, prostration and a fairly definite course ending by crisis.

Transmission. Both the typhus fever of Europe and America (Mexican) are transmitted by the body louse (Pediculus vestimenti). The filterability of the European virus through the coarser Berkefeld filters was discovered by Nicolle in 1910. Ricketts and his associates did not get infective filtrates with the American virus. Nicolle explains this on the ground that they used the serum from centrifugalized defibrinated blood, while he used the serum from spontaneously coagulated blood, and the most permeable of the bacteria-proof filters. The bacillus of chicken cholera was used for the test bacterium.

The disease is communicable to monkeys. The virus is found in the blood and is most virulent towards the end of the febrile period.

The virus is destroyed by a temperature of 52° to 55° C. It has not been cultivated.

Active immunity is very complete. The blood of animals which have recovered possesses transient protective properties. Ricketts and Wilder found in the blood of patients with Mexican typhus small numbers of minute bacilli. These bacilli measure about 2 by 0.6 microns, but are larger than the bacteria used by Nicolle as controls to his filtration experiments.

Scarlet Fever.[42, 43, 7]

Cantacuzene and Bernhardt claim independently of each other to have given scarlet fever to the lower monkeys—Macacus and Cercopithecus. Landsteiner and Levaditi were not able to confirm these results, though they were successful with chimpanzees.

Bernhardt also claims to have infected monkeys with bacteria-free Berkefeld filtrates. These results have not yet been confirmed. Protozoan-like inclusions, now included by Prowazek among the chlamydozoa, were described by Mallory in 1904, in the skin lesions.

ANIMALS AND MAN.

Foot and Mouth Disease.[6, 7]

Characterization. A contagious disease of cattle and swine characterized by high temperature and eruption of vesicles in the mouth and around the coronet of the feet. Man is susceptible.

Transmission. Contagious. The filterable nature of the virus was discovered by Loeffler and Frosch in 1898. Cell inclusions are found in the vesicles and Siegel claims to have cultivated these inclusions, which he called "Cytorrhyctes." The virus passes through the coarser grades of porcelain filters. It has not been cultivated. It is destroyed at a temperature of 50° C. in ten minutes, drying in twenty-four hours, five weeks' freezing at — 8° to — 9° C., and very easily by ordinary disinfectants. Animals after recovery are immune. Protective inoculations are not successful. A certain degree of passive immunity is conferred by injections of serum from immune animals.

Rabies.[44, 46]

Characterization. An infectious disease of animals, communicable to man and most common in dogs, characterized by acute onset of mental and nervous symptoms, and paralysis, and high mortality.

Transmission. The virus must enter through a break in the skin and is usually transmitted by bites from infected animals. The virus is found in the central nervous system, secretion of the salivary, lachrymal and mammary glands, in the pancreas, and occasionally in the blood, cerebrospinal fluid and aqueous humor.

The virus resists room temperatures without drying for months, freezing at — 16° to — 35°

C., glycerine for months, putrefaction, and drying if kept in vacuo in a dark place for months.

The virulence is progressively destroyed to a complete loss in fourteen to fifteen days. The virus is destroyed by a temperature of 55° to 58° C. in one-half hour. It is easily destroyed by disinfectants such as 1:1000 corrosive sublimate, 1 per cent. permanganate of potassium, 2 per cent. sulphuric acid, and 1 per cent. creolin. It is destroyed by gastric juice in four and a half hours, and by bile in a few minutes.

Cultivation of the virus has not been achieved. Inclusions which are practically specific for the disease were first described by Negri in 1903.

Artificial immunity is satisfactorily accomplished by injections of doses of the virus in increasing strengths. Passive immunity has not been accomplished.

VARIOLA AND VACCINIA.[3, 49, 70, 71]

Characterization of Variola. An acute febrile disease of man occurring in epidemics, characterized by a papular, vesicular and pustular eruption.

Transmission. Highly contagious. The filtrable nature of vaccinia was first discovered by Siegel and confirmed by Negri in 1905. (Quoted from Remlinger (49). The virus of small-pox was first shown to be filterable by Casagrandi (quoted from Vallillo (3) in 1908). The viruses are now regarded as identical. They pass through Berkefeld filters and the coarser grades of Chamberland filters. The virus is found in the cutaneous lesions. It resists drying for weeks, and glycerine for eight to ten months. It is destroyed by a temperature of 57° to 58° C. in fifteen minutes and easily by most disinfectants. It is also destroyed by saponin, ricin, bile, taurocholic acid and sodium-oleate. The virus has not been cultivated. Certain forms of inclusions described by Guarnieri in 1892 and most carefully studied by Tyzzer (70) and Councilman, Magrath and Brinckerhoff (71) are practically specific for vaccinia and variola. Their parasitic nature is accepted by Prowazek and they are grouped by him with the "chlamydozoa," but to most authorities this interpretation remains unproved.

Recovery from either vaccinia or variola gives complete immunity of long duration to either form of infection. Passive immunity has not been achieved.

BIRDS.

FOWL PEST.[53, 54, 55, 56]

Characterization. A disease of fowls, often affecting pheasants, sparrows and rarely geese. Water birds and pigeons are resistant. The disease is characterized by sudden onset, bloody diarrhea and great mortality. It resembles fowl cholera very closely.

Transmission. From feces and nasal secretions of infected birds. The virus is found in the blood stream, nervous system, in the excreta, exudate and nasal discharges. It passes through Chamberland F filters. The filterable nature was discovered by Centanni and Savonuzzi in 1901.

The virus resists glycerine for 270 days. Dry in the spinal cord and liver it survives 200 days. It is destroyed by a temperature of 55° C. in half an hour, at 60° C. it is destroyed in one minute. A 1 per cent. solution of corrosive sublimate destroys it in thirty minutes, a 1 per cent. sulphuric acid solution in ten minutes. Saponin destroys the virus in the blood but not in the brain. A temperature of 65° to 68° C. for four hours is required to destroy the virus in the brain.

Prowazek[53] found round and oval inclusions in the brain 1 to 1.5 microns in diameter, which by Giemsa's method stained rose yellow and contain a round or elongated bacterium-like bodies. Later he[54] included these in the group "chlamydozoa."

Marchoux[55] and Landsteiner[56] have cultivated the virus in stab cultures of a gelatine medium containing peptone and blood. Immunity of either sort has not been achieved.

FOWL DIPHTHERIA AND EPITHELIOMA CONTAGIOSUM.[57, 58, 59, 60]

Hutyra and Marek[5] give Carnwath[59] the credit for establishing the identity of fowl diphtheria and fowl pox or epithelioma contagiosum. The picture of the disease varies according to the seat of the lesions and virulence. If on the skin there are produced nodular growths on the skin and mucosa of the neck and head. The growth of the nodules, which are hyperplastic epithelial growths followed by degeneration and necrosis, may be extreme and produce blindness and inability to use the mouth. In fowl diphtheria the proliferation of the epithelial structures is not so marked. The mucous membranes are chiefly affected and there are marked exudative processes, diphtheritic in type.

The air passage may become completely obstructed. Edema of the lungs, necrosis of the liver and serous exudates into the joints and serous cavities may occur. Guinea-fowls, pigeons and pheasants are susceptible.

Transmission. By contact and ingestion of exudates and infected epithelial cells.

The filterable nature of the virus was discovered by Marx and Sticker in 1902. It passes the Berkefeld filters, but not the finer porcelain filters. It resists drying and exposure to diffuse light for weeks, glycerine for weeks and 1 per cent. saponin solutions.

It is destroyed by a temperature of 60° C. in three hours, by freezing at — 15° C. in five weeks, by 1 per cent. corrosive sublimate, 1 per cent. caustic potash and 1 per cent. acetic acid in five minutes.

Bordet claims to have cultivated the virus on a blood glycerine and potato agar mixture, but his claims have been denied by others. (Hutyra and Marek, Bd. 1, p. 423.)

Prowazek[54] regards the epthelial inclusions as specific organisms and includes them in his group of "chlamydozoa."

Immunity follows recovery and has been achieved by experimental inoculations with the virus. Passive immunity has not been produced.

Rous' Chicken Sarcoma.[61, 62, 63, 72]

This interesting, infectious and malignant tumor is transmissible only to one strain of fowls. Histologically it is apparently a spindle cell sarcoma.

The virus passes through Berkefeld filters impervious to Bacillus fluorescens liquefaciens, but not through the Chamberland F filter. It resists 50 per cent. glycerine for one month, repeated freezing and thawing, drying for seven months and heating at 50° to 53° C. It is destroyed by a temperature of 55 ° C. in fifteen minutes, 5 per cent. alcohol and 2 per cent. phenol in two hours. It is destroyed by the strengths of chloroform and toluol used to prevent bacterial growth during autolysis and by 0.5 per cent. phenol. It is also easily destroyed by saponin and chicken bile.

For transmission the filtrates must be introduced into the tissues. Contact of the virus with injured cells seems essential for tumor production. The subject is still under investigation by Rous and his associates.

SUMMARY.

An investigation of the properties and behavior of the filtered viruses shows that a somewhat significant grouping is possible.

One group is transmitted by intermediate hosts: biting insects of some sort. The mosquito transmits African horse sickness, yellow fever and dengue fever. Sand-fly fever is transmitted by a midge (Phlebotomus), and typhus fever by a body louse. Experiments have proved almost beyond doubt that the swamp fever of horses and the catarrhal fever of sheep are transmitted by an intermediate host as yet undiscovered. All of these diseases are essentially blood infections: diseases in which the parasite is primarily a blood parasite. It is quite possible, in the light of recent experimentation and statistical studies, that poliomyelitis requires an intermediate host for its transmission.

One group of diseases requires entrance of the virus directly into the tissue through an abrasion or injury to the surface of the body. These are rabies, molluscum contagiosum, verruca vulgaris, chicken sarcoma and probably trachoma, though it is possible that the last may affect a hold on a normal conjunctiva.

One group is transmitted by contact, which of course means contamination with infected material, such as discharges from the eyes, respiratory tract, surface lesions and excreta. These are: pleuropneumonia of cattle, cattle plague, distemper of dogs, fowl pest, fowl diphtheria, infectious stomatitis papulosa of cattle and the infectious agalactia of sheep and goats. Contagious or possible "air-born" diseases with filterable viruses are sheep-pox, hog-cholera, measles, foot and mouth disease, variola and scarlet fever.

The methods of transmission of guinea-pig epizoötic, guinea-pig paralysis and Novy's rat disease are unknown.

A number of these diseases, under which are included the most contagious, as foot and mouth disease, variola, sheep-pox, hog-cholera, measles and scarlet fever, and others less easily communicated, such as rabies, trachoma, molluscum contagiosum, distemper of dogs, fowl pest and epithelioma contagiosum of fowl, have associated in the lesions, cell inclusions which are more or less specific for the particular disease. v. Prowazek has given particular attention to these cell inclusions and has created for them the name "Chlamydozoa" in the belief that these inclusions are parasitic, a view held by comparatively few pathologists and bacteriologists. In the case of trachoma he maintains that the minute granules, which make up the trachoma body, are the infective agents which pass through the filter. Since McKee and myself have shown that trachoma bodies containing these granules are only the product of pathological mucous secretion, the probability of the inclusions being parasitic is disproved.[69] It is true, however, that in all the diseases where the filtrable virus is contained in cutaneous lesions, special effort must be made to thoroughly break up the tissue cells, before an infectious filtrate can be obtained; this is likewise true of rabies.

Prowazek argues that the cells must be broken and the inclusions themselves disintegrated in order that the filterable forms may be set free. In fowl pest the virus has been cultivated, which is another argument against the inclusions being parasitic.

In small-pox, sheep-pox and foot and mouth disease the viruses are found only in the eruptive lesions and are all resistant to glycerine. Somewhat similar cell inclusions are found in all. In distemper of dogs, fowl pest, rabies, poliomyelitis and guinea pig paralysis the virus shows a preference for the central nervous system; in the first three cell inclusions are found in nerve cells; in the last three the viruses are resistant to glycerine.

Cultivation experiments with filterable viruses have been fruitless, with the exception of pleuropneumonia of cattle, fowl pest, fowl diphtheria and epithelioma contagiosum and Novy's rat disease. The viruses of these diseases have been cultivated without question. The organism of pleuropneumonia of cattle is exceedingly polymorphous, the commonest forms are small spirochetes which occur singly and in clusters. There are also short coccus-like forms. The other cultivated viruses reveal their presence only through the infectivity of subcultures car-

ried beyond any reasonable limit of dilution from the original.

Some light on the probable nature of filterable viruses, whether protozoan or bacterial, may be obtained from the study of their behavior to various chemical and physical agents. In general, they are destroyed at a much lower temperature than bacteria, but several are rather resistant, particularly the mosaic disease of the tobacco plant, African horse sickness, hog-cholera and fowl diphtheria. They are in general more resistant to the action of glycerine, and here again those associated with inclusions seem to be the most resistant, although we have no data regarding the resistance of *the viruses* of molluscum contagiosum, verruca vulgaris, trachoma and distemper. In a few instances it has been shown that the filterable viruses are more easily destroyed by certain substances than are bacteria. These substances include saponin, ricin, bile and bile salts, but as the data include only sixteen of the viruses, these tests are not of importance in a general argument. A bacterium, the pneumococcus, is destroyed by bile, a fact which detracts from the value of these tests.

One rather striking feature of the disease with filterable viruses is the nature of the immunity. In nearly every instance immunity is complete and of long duration, and in many instances artificial immunity has been achieved through protective inoculations. In nearly every instance successful passive immunity has not been obtained, which would indicate that, unlike most bacteria, these viruses produce but little in the way of toxins.

Bacteria play an important secondary role in some diseases caused by filterable viruses; it is even probable that the typical disease picture is produced only by the combined effect of the filterable virus and bacteria. These diseases are: hog-cholera, distemper of dogs, guinea pig epizoötic of Petrie and O'Brien, and scarlet fever. The association of the bacterium with the disease has been so close in the case of hog-cholera that for many years Bacillus suipestifer was supposed to be the sole cause; just as now many believe the streptococcus to be the cause of scarlet fever, and various bacilli the cause of distemper of dogs.

This brief outline and analysis of the subject of filterable viruses would indicate that certain of them are bacterial in nature, because of their resistance to physical and chemical agents, and because four of them have been cultivated. The fact that there is a group that is transmitted only by biting insects would indicate that some of them are protozoal in nature. This seems most probable in view of the filtration of protozoa which has been accomplished by Borrel and Spiegel. The fact that spirochetes have been filtered suggests that certain of the diseases transmitted by intermediate hosts may be due to spirochetes, and particularly some of the diseases of animals. It is not possible to discuss here the classification of spirochetes, whether bacterial or protozoan in nature. For the present it is best with Swellengrebel[64] to consider them in a class by themselves.

From the grouping of these diseases, which is possible with respect to the manner of transmission, localization of the virus in the tissues and properties of the viruses in respect to physical and chemical agents, it seems fair to predict that at least some of the diseases which fall into a given group are caused by very similar microorganisms; and that the actual demonstration of the parasite, or its culture, of one disease will mean a ready solution for others of the same group. It is quite possible that when our knowledge of filterable viruses is more complete, our conception of living matter will change considerably, and we shall cease to attempt to classify the filterable viruses as animal or plant. The extreme minuteness of certain of these viruses, which cannot be thrown down by prolonged centrifugalization with the most powerful machines, and which pass through the finest porcelain filters, suggests that some of their properties may be due to this very minuteness in size; and that like the colloid solution of metals, which behave in some respects like enzymes, a part of their activities and even pathogenic effect may be due to physical phenomena, such as surface action. The extreme minuteness may also account for the contagious nature of certain diseases, because it has been recently shown that minute particles suspended in air or liquid obey the laws which govern the diffusion of gases and of substances in solution in liquids.

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SUBPHRENIC ABSCESS.*

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Subphrenic abscess may be defined as "any collection of pus or pus and gas, the whole or part of which intervenes between the diaphragm and the structures in contact with its lower surface. (Godlee).[1]

Synonyms: Subphrenic abscess, hypophrenic abscess, pyopneumothorax subphrenicus, suppurative perihepatitis; perigastric abscess, supraphepatic abscess.

The supposed rarity of subphrenic abscess and the extreme difficulty of its diagnosis, caused it to be practically unknown till Barlow described it in 1845. The first reported case, however, was that of Veit (1779), in which the abscess was situated between the diaphragm and the right lobe of the liver. Von Volkman,[2] (1879) was the first to demonstrate that an abscess below the diaphragm could be treated surgically. His operative success stimulated general interest in the disease, especially its causes, anatomic relations, diagnosis and treatment. A year later Leyden[3] made a valuable contribution to the literature of the subject, and Cossy[4] in France published at the same time (in the Archive Generale de Medicine) an article on "Pneumothorax Caused by Gas Preceding from the Digestive Tube." These were soon followed by a masterly paper from Maydl.[5] Notable contributions have been made by the Americans, Weir,[6] Beck,[7] Berg,[8] and Ross,[9] the latter taking radical departure as to its cause in the majority of cases, and devoting his entire paper to "Subphrenic Abscess of Appendical Origin."

The voluminous literature of recent years has added much to our general knowledge of the disease, and impressed upon us its comparative frequency and vast importance. On two vital points, however, it has often been misleading, that is, in respect to most frequent cause, and location of the abscess. The impression is generally given that subphrenic abscesses are most often found on the left side and are the result of perforating ulcer of the stomach. Ulcer of the duodenum comes next as to cause, with appendicitis and other causes following.

At the present day this view point is reversed, with statistics clearly proving that right sided abscesses are more frequent, and that secondary infection from the appendix is the ranking cause.

Hunt[10] in 1904 stated that left sided subphrenic abscesses were met with more frequently than right sided, and in only 1 of 19 cases due to gastric ulcer did right sided abscess occur.

He reports 38 cases at St. Mary's Hospital, of which 19 had their primary lesion in the stomach. Others quoted were: duodenal ulcer, 3; hepatic abscess, 4; appendicitis, 3; peri typhlitis, 4; malignant disease of stomach, 2; renal calculus, 1; splenic abscess, 1; injury, 1.

Douglass[11] in 1903 states that "Usually such collections of, or pockets of pus, are to the right side of the falciform ligament of the liver." Then contradicts himself by saying, "Gastric ulcer takes first rank as a cause of subphrenic abscess." This is the old story of perigastric abscess becoming subphrenic.

Moynihan[12] in 1905 begins his description of subphrenic abscess by stating that it is "an abscess beneath the diaphragm, between it and the liver, may be either intraperitoneal or extra peritoneal; it may lie to the right or to the left of the suspensory ligament of the liver. The intraperitoneal form is more frequent than the extra peritoneal, and the abscess is more commonly found upon the right side."

Korte[13] reported 60 cases of his own, 40 recovering. The origin was the appendix in 27 cases, stomach 9, duodenum 1, spleen 5, remainder scattering.

Ross infers from statistics he has gathered that: 1. Subphrenic abscess following appendicitis is more common than formerly was supposed. 2. It occurs in from 0.5 per cent. to 1 per cent. of all cases of acute appendicitis.

Christian and Lehr[14] report 4020 autopsies, in

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86 of which death was due directly or indirectly to acute appendicitis. Of these 86 cases 7, or 8.13 per cent. showed involvement of subphrenic region in a purulent process.

Kelly and Hurdon, Boston City Hospital, in course of 410 consecutive autopsies, encountered 13 subphrenic abscesses of which 7 were of appendical origin.

Piquand[16] reports 890 cases of which 191 were due to the appendix.

Lance[15] reports 943 cases of which 222 were appendical in origin.

German Hospital, Philadelphia, records show that appendicitis as a cause outranks all others combined.

Barnes reports 12 cases of subphrenic abscess of appendicular origin, all of which were on the right side.

Of 31 cases reported from the German Hospital, Philadelphia, 29 were on the right side only, 1 was double, right and left, 1 was on the left side only.

Unquestionably the statistics quoted substantiate the previous statement that subphrenic abscesses are much more frequent on the right side, and that the appendix is the chief source of mischief. The reason for this is that the appendix is the most frequent source of abdominal infection, and the existence of anatomic arrangement for conduction and gravitation from this focus to the diaphragm. Although septic extension from this point to the diaphragm may be through the lymphatics behind the peritoneum, through the peritoneum itself, (McCallum) or through the ascending mesocolon, gravitation is the chief cause.

Barnard[17] says: "The recent investigations of surgeons in connection with the treatment of diffuse peritonitis have shown that the main cause of subphrenic accumulation is gravitation. As a patient lies flat on his back in bed, the posterior extremity of his subphrenic spaces are separated from the mattress by the skin, the ribs and the diaphragm, which together do not make up much more than one-half inch of tissues. The pouch of Douglass or the rectovesical pouch in the male, in a similar way are only separated from the mattress by the skin, the coccyx, and the width of the flattened rectum. Between these two dependent pouches, the thick muscles and tissues of the loins, with the kidneys and the perinephric fat, rise as two elevated mounds. When the general peritoneum is infected, a profuse flow of serum is poured out, and this gravitates upward into the subphrenic spaces and downward into the pelvic pouch. If the patient is well propped up on pillows or is supported by an efficient bed rest (Fowler's[18] position), fluids will run from beneath the diaphragm over the loin mound into the pelvic pouch, from which it may be drawn off by a tube passed to the bottom of that fossa, from a puncture above the pubes. This method is effective in preventing subphrenic abscess only while the exudate is diffused. When it is shut in and localized, special measures must be adopted to evacuate it.

The parieto-colic gutters which are formed by the colon and abdominal walls on either side, serve as conductors of septic fluids from the lower abdomen and pelvis on the left side, and the pelvis, appendix, and cecum, on the right side.

Barnard describes a fossa between the vertebral column and descending colon and roofed in by the mesentery, by means of which the space between the diaphragm, left lobe of the liver and spleen, comunicates with the retrovesical and retrouterine pouch.

Coughlin[19] says: "Since 1900 I have frequently demonstrated to students in anatomy the fact that with the body supine, the lowest point in the pelvic cavity is from four to six inches lower than the upper margin of the symphysis pubis, while with the body vertical (standing or sitting) the lowest point in the pelvic cavity (peritoneal) is from one and a half to two and a half inches below the upper margin of the symphysis pubis; that the lowest points in the abdominal cavity with the body supine and horizontal are in the neighborhood of the mid-points of the external arcuate ligaments and that with the body supine on the table a greater thickness of wall separates the pelvic cavity from the table than separates the abdominal cavity from the table in the neighborhood of the ligaments arcuata externa. For the past three years I have used the lateral position with the upper part of the body raised to about 30 degrees with a pillow under the body above the iliac crest and drained below and internal to the anterior superior iliac spine in all suppurative conditions in the lower abdomen in which I thought drainage indicated, always turning the patient on the side most involved. I find it more satisfactory." To substantiate his views he has made a number of interesting experiments by injecting water into the abdominal cavity of the cadaver and then attempting to withdraw it in various positions, and arrived at the following conclusions:

1. "The pelvic cavity could not be completely drained of water by raising the supine body even to 90 degrees 'bolt upright.'"

2. "The pelvic cavity could be completely emptied of water by turning the horizontally placed body just more than mid-way between pronation and supination."

3. "Water found its way from the left loin to exit just below and internal to the right anterior superior iliac spine with the body raised to 45 degrees in the right lateral position."

4. "With a distended condition of the intestines, although water gravitated less rapidly, practically the same results were obtained."

5. "Although water found its way from the left loin, as above stated, it did not so easily find its way from the right loin to exit just below and internal to the left anterior superior iliac spine; no matter how high the left laterally ly-

ing body was raised a quantity remained in the right loin."

He also quotes Coffey[20] as stating that "In order to have fluid flow into the pelvis from the hollow on either side of the spine without turning the body on the side, it was necessary to raise the thorax and upper abdomen so that the long axis of the abdominal cavity was at an angle of 60 to 70 degrees with the horizon."

Among the many other causes of subphrenic abscess are the following:

The intestines. Colon bacillus, ameba.
Hydatids. Echinococcus.
Pelvic suppurations. Gonococcus.
The liver and its ducts. Colon bacillus mixed infections.
The kidneys, The spleen, Wounds. } Mixed infections.
Ribs and spine. Tubercle bacillus.
The thorax. Pneumococcus, T. B.

As subphrenic abscess is always a secondary disease, its bacteriology is that of the causal focus.

Right sided abscesses are usually due to infection from the appendix, cecum, colon, right kidney, liver and bile ducts, hydatids, ribs and spine, pleura, pelvis and portal circulation and trauma. Those on the left side, stomach, duodenum, spleen, left kidney, intestines, ribs and spine, pleura and trauma.

Barnard classifies all subphrenic abscesses according to their position as regards the falciform and lateral ligaments of the liver as follows

A. Intraperitoneal
1. Right { I. Anterior. II. Posterior.
2. Left { III. Anterior. IV. Posterior.
B. Extraperitoneal { V. Right. VI. Left.

A right anterior intraperitoneal abscess is one situated between the upper surface of the right lobe of the liver and the diaphragm.

A right posterior intraperitoneal abscess is one in the subhepatic pouch, a pyramidal space bounded laterally by the abdominal parities, in front by the liver and gall-bladder, posteriorly by the abdominal parities, and having its apex formed by the upward slope of the margin of the left lobe of the liver.

A left anterior intraperitoneal subphrenic abscess or perisplenic abscess lies in the fossa formed by the diaphragm above, the left lobe of the liver below and to the right, and the spleen to the left. It is bounded sharply to the right by the falciform ligament.

A left posterior intraperitoneal subphrenic abscess is one situated in the lesser peritoneal cavity.

A right extraperitoneal subphrenic abscess is one formed in the cellular space between the layers of the coronary and other peritoneal ligaments of the liver.

A left extraperitoneal subphrenic abscess is one formed in the retroperitoneal cellular tissue of the left loin.

An extraperitoneal subphrenic abscess does not extend over the diaphragm, except at such sites where it is free from peritoneum, *i.e.* between the ligamentous folds of the liver. The general peritoneal covering of the diaphragm is too closely adherent to allow its free separation by pus dissection.

Clinically it is impossible to say whether a subphrenic abscess located among the ligaments of the liver or in the left loin is of intra or extraperitoneal origin, and surgically it is of little consequence.

Pique[1] has made special study of the anatomic situations and relations of subphrenic abscesses, as well as their mechanism of limitations, and the varieties and routes of infection.

He divides subphrenic collections of pus into three zones—

1. Hepato phrenic.
2. Hepato-gastro phrenic.
3. Perisplenic;

and as to frequency of infecting focus—

1. Appendix.
2. Stomach.
3. Duodenal and other foci.

He emphasizes the frequent excursions of these abscesses into the thorax and pelvis.

SYMPTOMATOLOGY AND DIAGNOSIS.

Subphrenic abscess being a complication of a preceding condition, the symptoms of the original disease must be carefully considered, and deductions drawn therefrom. As Douglass has pertinently stated: "There is no one symptom or set of symptoms constantly present and pathognostic of subphrenic abscess. The very obscurity of its symptoms makes it at once interesting and dangerous. The existence as extra and intraperitoneal collections of pus, its development upon the one side or the other, or upon both, the presence or absence of gas, are conditions giving rise to varied symptomatic features." A septic history stands first in importance, and secondly thoracic symptoms at the base of the lungs. Given a history of appendicitis, or other localized abdominal or pelvic peritonitis, general peritonitis, or a pus focus in any of the abdominal or pelvic organs, with subsequent development of obscure symptoms in the region of the diaphragm, suspect subdiaphragmatic abscess. These abscesses may occur at any age when of appendical, tubercular, or traumatic origin; but usually occur after 40 when gastric ulcer is the cause.

Willy Meyer reported a case in a girl of 12 secondary to an appendix.

The onset may be insidious or fulminant, depending upon the mode of infection, its situation, and the rapidity of invasion.

A sudden perforation of a viscus under the diaphragm, with no, or only frail preceding adhesions, gives a stormy onset, with pleural pains, high temperature, and other symptoms of acute violent sepsis of the upper abdomen or lower thorax.

When it is remembered how thin the tissues are which separate chest from abdomen, it is readily understood why these double cavity symptoms are at once in evidence.

Besides pleural pain, with rigidity of lower chest wall, rales, dullness, and fremitus are generally found. Pleuratic effusions may become marked, and be followed by empyema. Infection of the pleura may occur from below the diaphragm by continuity or contiguity. Ross reports seven lung extensions in 31 cases. A subphrenic abscess may rupture the diaphragm, and discharge into the pleural cavity. Madyl reports perforation of the diaphragm in 65 out of 179 cases, and Lang[22] 67 out of 163 cases. Infections of the pleura without perforation, Maydl recounts 14 times in 25 cases; Sachs[23] 22 times in 41 cases; and Gruneisen[24] 17 times in 27 cases.

On the other hand, a basic empyema may infect the subdiaphragmatic region, and cause a double abscess, with the diaphragm intervening. The presence of gas in the abscess cavity, which usually occurs in about half the left sided cases, whether perforation of a hollow viscus has occurred or not; and rarely on the right side, shows that gas may be due to the presence of a gas forming bacillus, either the bacillus aerogenes capsulatus, (Welch), or the paracoli bacillus aerogenes.

In 27 subphrenic abscesses of appendical origin, Gruneisen found gas to exist five times without perforations. Pique says it is certain there are gaseous abscesses with or without perforation. Pus in either kind is generally putrid, and fecal if the colon bacillus is present. When gas is present, and an empyema or pleuritic effusion exists above, the diagnosis becomes still more complicated, for here there are four different percussion zones. From above downward lung resonance, dullness, gas, and dullness. This condition was named by Leyden pyopneumothorax subphrenicus. Of course in a pyopneumothorax there are only two zones; air from the top of the chest cavity to the pus level, and pus from there to the diaphragm. Localized pain, tenderness, and bulging of the chest wall may aid in deciding a pleural effusion, while the same signs at or below the diaphragmatic line may determine subdiaphragmatic pus.

In cases of subphrenic abscess from chronic perforation of the stomach, Mayo-Robson[25] elicited the following sign: "On placing a stethoscope over the eighth intercostal space, which region was dull on percussion, and on placing a coin over the stomach and percussing it with another coin, the sound was distinctly conveyed through the whole of the abscess cavity and through the stethoscope to the ear." Diagnosis confirmed by operation.

These complex thoracic and abdominal symptoms may be differentiated to certain extent by percussion and auscultation, and a fairly rational diagnosis made, but aspiration is the most important diagnostic aid, and should be done as soon as there is the least suspicion of pus under the diaphragm. It can be done painlessly under general anesthesia or practically so under anesthesia.

A large size needle is necessary as the pus is often viscid and refuses to flow through it. A fibrinous exudate in the diaphragmatic pleura or peritoneum may also clog the needle.

The needle should first be pushed between the seventh and eighth ribs in mid-axillary line, and directed forward and downward. As it passes through the pleura clear fluid or pus may be seen, and further down the resistance of the diaphragm is felt, and as it is pierced, pus from the subphrenic abscess escapes.

By shutting off the aspirator stop-cock, and detaching the needle from the tubing, the pus odor may be tested, which in case of colon bacillus infection is characteristically bowel—and this tells at once the source of infection.

Should nothing flow through the needle it may yet be in a gaseous cavity, and a flame may ignite escaping gas, or the handle of the needle may be put under sterile water and bubbles of gas be seen traversing it. Should a dirty bloody fluid containing shreds of red tissue be drawn, an hepatic abscess has been entered. If nothing is found after pushing the needle in several directions, it should be withdrawn and washed with sterile water for a culture. Another mode of needling is to insert the needle from below under the 10th rib, and push it upward and inward, changing the direction of the point several times till pus is found or the safety area is exhausted. Care should be exercised that no hollow viscus is penetrated. It is best to be prepared to operate at once should pus be found, no matter what the condition of the patient may be. In extreme condition, death is probable any way, and evacuation of pus with free drainage is the only hope.

Finally our means of diagnosis are not exhausted till the Roentgen Rays are used. They are especially useful if the pleura is not involved. The presence of gas gives a clear field above a dark shadow. By shaking the patient while using the fluoroscope, the fluid may be seen taking different levels.

The prognosis is always grave, though varies with the source of infection, location of abscess, and time of operation.

Death generally results from sepsis.

It is possible for a subphrenic abscess to heal spontaneously through perforation into a hollow viscus, or discharging externally, but expectant treatment usually results in death.

The fulminant cases may die in a day or two,

whereas those due to slow absorption may last for weeks or months.

Sachs's statistics show that of those operated within three weeks 15.3 per cent. died; while of those operated later 50 per cent. died.

Maydl places the general mortality at 56 per cent., Elsberg[26] at 40 per cent. With operation Gruneisen places it at 33.5 per cent., Maydl 35.7 per cent., Sonnenberg at 44 per cent., Sachs at 37.5 per cent., and Elsberg at 22 per cent.

Without operation Sonnenberg puts the mortality at 55.5 per cent., Sachs at 71.5 per cent., and Elsberg at 82 per cent.

Lang reports 176 cases in which 47.9 per cent. recovered after operation, and 12.3 per cent. without it. Of the 31 cases reported by Ross, all due to appendicitis, 22 died. Of these 13 had been diagnosed and operated; and in 9 cases the diagnosis was made post mortem.

Mayo[27] clinic during 1908–9–10, under laparotomy, reported 11 cases operated, with two deaths. Location and character of abscess not given.

Operation: As these cases are of extreme gravity, and are always secondary to some other lesion, or septic focus, early recognition and operation upon the causal focus would of course prevent their development. Subphrenic abscesses, however, when seen by the surgeon, are generaly well developed and large pockets of pus are usually found. Of course immediate evacuation of these pus pockets, with free drainage, is demanded. Incision and drainage of the abscess having been done, the next step is to search out and remove the original cause. It must be borne in mind that distant pus pockets due to extensions from the original or secondary septic foci may exist from the lungs to the pelvis, and they must be found and thoroughly examined. In this connection it may be well to recall attention to the quotation from Barnard, in which he illustrates so graphically the extension of abdominal sepsis through gravitation.

A subphrenic abscess may be reached from above the diaphragm or below it according to its most prominent presentation. When there is a decided presentation, incision should be made through it. The usual incisions are:

1. Through the anterior abdominal wall-epigastric.
2. Along the costal border.
3. Transpleural, through the chest wall and diaphragm.
4. Combination of thoracic and abdominal after Moynihan.
5. Through the loin, Lannelongue.
6. Through the back, Lund.[28]
7. Aspiration, with trocar and tubal drainage, Cantlie.[29]

1. The epigastric incision is used in those large bulging abscesses which generally result from gastric perforation. It should be free enough to permit of wide search in case the abscess is not at once reached. After reaching and evacuating the abscess, its cavity is well explored for deep pockets which almost always exist, and may demand counter incision lower down. Tubal or gauze drainage or both may be used according to indications.

2. The costal border incision is made about four inches long and carried through all structures to the peritoneum. Here blunt dissection with the finger is made till pus is reached, when the cavity is opened and emptied, and the direction and limits of the abscess determined. Tubal drainage is used. Von Mikulicz recommends this technic in extraperitoneal abscess.

3. In the transpleural route, the technic of Elsberg gives best satisfaction. An incision about four inches long is made over the 9th and 10th ribs on the right side, and 7th and 8th ribs on the left side, and if possible, the middle of this incision should be at the point where pus has been drawn; practically in the axillary line. About two inches of the ribs are resected, when the pleural cavity is inspected. If it is healthy or contains clear fluid, it must be protected from infection by stitching the two surfaces, the diaphragm and the chest wall together and packing off with gauze. If the diaphragm is not bulging markedly upward, which it generally is from pressure of the subjacent abscess, an assistant pushes the liver well up, when the diaphragm is caught with forceps and incised, the cut edges being held open till evacuation of pus is complete, when the direction and extent of the cavity is determined and counter opening made if needed. Tubal and gauze drainage should be used.

4. The combined thoracic and abdominal incision was introduced by Moynihan to secure more thorough drainage. He carries the thoracic incision onto the abdomen, thus freely opening the cavity above the liver, and then packs it with gauze.

5. Through the loin Lannelongue. In this operation the 11th and 12th ribs are resected, and the pleura pushed up by blunt dissection till the pus cavity is reached.

6. Through the back, as recommended by Lund. When pus is not actually on top of the liver, he opens from behind the angle between the 12th rib, and the vertebral column, an incision being made as if to cut down on the kidney, the fingers being pushed up through the perirenal fat above the kidney until the abscess is reached and drained. In right sided cases if the pus is actually on top of the liver, he thinks the transpleural route the best. Under other circumstances he prefers the route through the back. This technic is especially useful in extraperitoneal abscess.

7. Cantlie's operation, in which the abscess is located by aspiration, a large trocer and canula being then substituted for the aspirating needle, and through the canula is introduced a rubber tube which is held in place as the canula is withdrawn, and stitched to the skin, with siphon drainage.

The two cases upon which I have operated were both right sided, and the transpleural route was used in each.

1. Case one was in a 17 year old boy, and was secondary to an appendical abscess upon which I had operated two weeks previously. It was two weeks after the appearance of secondary septic symptoms before a positive diagnosis was made and the case operated. Girdling pain at the level of the diaphragm, lower chest rigidity, with dullness from costal margin below to fourth rib above, made a fairly clear picture, which was definitely fixed by aspirating pus. Resection of two inches of the 9th and 10th ribs was done over the point of aspiration, and as clear fluid was found on opening the pleura, the layers of this membrane were stitched above and below to the chest wall, the suture lines packed off with gauze and the diaphragm opened into the suprahepatic portion of pus cavity. The fecal odor of the pus showed the colon bacillus to be the offending microbe. After pus was evacuated, the general cavity was explored and found to be a true right sided abscess, extending from the suspensory ligament of the liver on the left to the chest wall on the right. Behind it extended into the subphrenic pouch and loin, and in front to the lower border of the liver. After the cavity was carefully wiped, tubes were placed over the liver, and down the right parietocolic gutter, with gauze lightly packed between them. The upper part of the abscess cavity was closed in within a week, but the lower pockets persisted, so that in ten days a counter incision was made through the back at the level of the 12th rib, and a large tube placed in the lower end of the pus pocket. The case progressed rapidly after this and was well in a few weeks. The mode of septic extension in this case was undoubtedly by gravity along the right parietocolic gutter to the under surface of the diaphragm.

2. Case two was in a man 45 years of age, and had its origin in infected pleura from pneumococcus invasion. This abscess had broken into the lung before I saw the case, and pus was being expectorated freely. Breath sounds and resonance extended downward to the eight rib, where dullness began and extended to the 11th rib. Aspiration in the ninth inter space found pus and resection of two inches of ninth rib in mid axillary line gave ready access to it. At this stage of the operation the case seemed to be sacculated basic empyema, but blunt dissection with index finger through several small pus pockets eventually broke through a necrotic or perforated area in the diaphragm, and the main pus cavity was found on top of the liver. Tubal drainage resulted in complete cure in about two months.

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ACAPNIA: ITS SURGICAL IMPORTANCE.

BY F. J. COTTON, A.M., M.D., BOSTON.

ACAPNIA is the condition in which the carbon dioxide content of the body (blood and tissue both) is definitely below the normal percentage,—a percentage which is curiously constant under normal conditions.

Most of us were brought up to look on carbon dioxide as a waste product only, a product of no conceivable interest save for its elimination from the body.

Not only is it true that carbonic dioxide has a real physiological role, but the physiologists have long known this, and Hill and Haldane and others of the Englishmen have been at work on this problem for years.

But until our men, notably Yandell Henderson of Yale, began to work and to publish, we rested in secure ignorance of all this.

Henderson's work was so presented as to challenge surgical attention for the first time.

There is no doubt that the surgeon is concerned in this matter.

The trouble is that for the present the working surgeons (in school fifteen to twenty-five years ago) know so little physiology that they cannot keep track of the literature!

I am guilty with the rest; and I must confess that it was my assistant, Boothby, who first called my attention to the literature of acapnia.

Then I read (as I advise you all to do) Henderson's monographs and something of the English work, and later went to New Haven and got Henderson to give me some real perspective.

The whole trouble with this particular problem is that we were all taught to consider cyanosis a symptom of defective elimination of carbon dioxide, as well as of lack of oxygen.

The physiologists have long known—and we must learn—that cyanosis spells anoxhemia—lack of oxygen—and has nothing to do with carbon dioxide at all.

When one has really grasped this notion, progress is possible.

The body contains about 40% of CO_2 (by bulk).

If the percentage rises above this we have the condition called hypercapnia. This condition results clinically in an exaggerated respiratory effort, to get rid of the excess by way of the lungs.

So far as we know, there is no condition of hypercapnia that involves any other clinical phenomenon than this, save for headache, nausea, and malaise.

But if the CO_2 percentage goes, not up, but down, then the condition gives all sorts of phenomena that come within our clinical range. These will be detailed presently.

Now this matter has been worked out in the laboratory, admirably worked out, and apparently to a final solution of most of the phenomena.

It *must* be important clinically!

There remains only the translation and verification of the laboratory results under actual surgical conditions; which sounds simple, but is not.

Before we have the full answer, years of careful precise work by many of us clinicians must be collated, and judged in conjunction with the laboratory results.

So far as we may conclude from laboratory data, the gist of the matter may be stated very briefly as follows:

The proportion of CO_2 in the blood and tissues is, under normal conditions, remarkably constant. It runs about 40% by volume.

Reduction of this percentage occurs by excessive respiration (caused by pain or nervous excitement, or occurring in anesthesia), or through exposure of body tissues without the protection of the skin, particularly by exposure of the intestine in laparotomies.

Such resultant loss of CO_2 brings about:

(1) loss of the normal excitant influence of CO_2 on the respiratory centre—hence the occasional failure of respiration under anesthesia,

(2) loss of venous tone,—vasomotor failure of the whole *venous* system, hence the "bleeding into the splanchnic veins" which seems an important element in what we call surgical shock, (I do not think the *identity* of this condition of acapnia with what we call shock has been *proved*, but its similarity is striking and in many details the theory that shock is acapnia fits better than the theory that it is vaso-motor palsy from nerve-insult—the usually accepted notion).

(3) loss of tone and action of other unstriped muscle fibre, particularly of the gut.

Everyone knows that opening the belly cavity causes, almost instantly, a cessation of peristalsis. Under ordinary surgical procedures this failure of peristalsis is not fully recovered from for some time—for a period of forty-eight hours or more—the period of re-establishment of peristaltic balance being marked even in simple laparotomies by the distressing "gas-pains" so familiar to us all.

Air-exposure and over-much handling have always been accepted as the cause of these phenomena, and no doubt do play a rôle, but the air exposure at least works mainly by affording opportunity for direct loss of CO_2. Experimentally it is simply shown that such loss may be prevented or compensated (either by direct application to the gut-surface of CO_2 gas, or by raising the body content of CO_2 by forced rebreathing) and that if this is done peristalsis is promptly re-established.

In short:—

Rapid loss of CO_2 by respiration is a factor we must reckon with,—especially in regard to anesthesia and its accidents.

The relation of acapnia to shock needs working out clinically.

Acapnia, general or local, *must* be a serious factor in the temporary gut-paralysis that so often complicates, if it does not defeat, our best abdominal work.

It is strange that so little has been done along this line clinically, for the physiological work is by no means all recent.

Fortunately we have an accidental clinical confirmation of a part of this laboratory work. Various anesthetists have used rebreathing of anesthetics as a measure of economy. Notably Gatch of Baltimore has utilized rebreathing of nitrous-oxide and oxygen to a great extent, at first to reduce the cost, later with a real recognition of its advantages in preventing shock.

A large part of the lack of shock conspicuous in the nitrous-oxide-oxygen work of Boothby and myself we have come to believe due to moderate rebreathing rather than wholly to the advantages of the anesthetic itself. It is hard to estimate the strength of this confirmation, but we may state it in this way, I think: the consensus of opinion of the more observing anesthetists (dependent on actual clinical observation) in favor of moderate rebreathing, is wholly in line with the theories of the phenomena of acapnia.

In regard to surgical shock we have no clinical data. The cases I present in this line are perhaps suggestive, but certainly not conclusive.

In regard to the matter of peristalsis, the cases cited herewith do so neatly conform to the experimental data as to have a greater value, I think, than their number would suggest.

Finally, I think the first two cases are real cases of severe general acapnia; the first, at least, of a grade of acapnia that would have been fatal without appropriate treatment.

The first relevant case was one of extra-uterine pregnancy operated on May 8, 1911, at the Boothby Hospital, one and one-half hours after she was first seen,—referred by Dr. J. Shohan of Roxbury.

She had long delayed calling a doctor and at operation was in the desperate exsanguinated condition not uncommon in these cases.

The abdomen was full of blood; the source of bleeding was a ruptured sac, not strictly extra-uterine, but "interstitial." This was dealt with in the usual way, and she rallied promptly, but after a few hours, being in some distress, began an exaggerated breathing of definitely hysterical type, "hysterical hyperpnea."

Presently the rate of breathing went to 54, deep and gasping, and soon she began to "go to pieces,"

weak rapid pulse (120 +) pallor, restlessness, and grave abdominal distension.

It seemed worth while to try to combat the obviously abnormal over-ventilation.

Accordingly a cylinder of carbon-dioxide (the compressed *natural* gas) was obtained, and by means of an inverted funnel with appropriate tubing, hung inverted over her nose, we fed her CO_2 and oxygen for about four hours at intervals, intermitting it as she became restless or felt oppressed.

The patient's color improved first, then the pulse grew fuller and a shade less rapid: then she began to be less restless, and after about four hours she called for the bed-pan and expelled enormous amounts of feces and flatus.

The respiration did not come to normal, however (only to 40 per minute), and twelve hours later she began to show trouble signs again.

Three hours more of CO_2 and O_2 brought her back to normal, and after this there was no trouble, and convalescence was uninterrupted and smooth. Discharged home May 22d.

The second case was a healthy young woman of thirty from whom a doubtful appendix and ten sub-peritoneal fibroids of the uterus had been removed, Oct. 21, 1911, at the Boothby Hospital.

Six hours after a successfully conducted operation she began, under a symptom-complex typical of shock with hemorrhage, to show serious symptoms. Even the typical air-hunger was present.

So strongly did the clinical picture impress me that I reopened the lower corner of the wound to see if after all there might be bleeding.

There was none. This question answered, the diagnosis was clear.

We were dealing with acapnia, with a cause obvious enough,—namely an unusual amount of crying-out and deep sobbing respiration, induced by local pain.

The treatment in this case was the use of Henderson's laboratory rebreathing-bag—a simple grocer's paper-bag fitted over mouth and nose. This was kept on for one minute out of every five for several hours.

Almost from the beginning there was subjective relief, and after a half-hour color and pulse were normal, respiration nearly so. The abdominal distention—only slight—subsided.

The treatment was continued through the night at intervals. No stimulants were used. In the morning she was in normal condition, and convalescence was uninterrupted to her discharge on Nov. 4th.

Case three, W. B., boy of 17, entered the City Hospital Oct. 20, 1911.

Struck in belly two days before entrance with a fist. Immediate pain and vomiting.

On entrance the belly was rigid in spasm, only moderately distended. Pulse 130, of poor quality, temperature 103°.

There was no doubt about the presence of general peritonitis, whether from intestinal rupture or not, we could not be certain.

It was evident that we should have to deal with a good deal of intestinal distention. Accordingly it seemed well to test out the probable effect of CO_2 applied locally. The only carbon-dioxide available was a "presto-tire" tube kept in the Pathological Laboratory for frozen-section work. This is an impure CO_2, and the cylinder was therefore so connected as to wash the gas through water.

Then the operation was begun.

A sloughing appendix was found as the cause of a very foul diffuse peritonitis extending to the level of the liver, with much fibrin deposit.

This was treated as usual by cleansing and washing. There was then a considerable amount of distended small gut outside the abdomen. The CO_2 was then turned on—the gas turned loose, on and under the exposed gut. Where there was a reasonably normal gut the reaction occurred within a minute: where the intestine was coated with lymph it took four to five minutes.

This reaction, very clean-cut and distinct, consisted of a general contraction in the diameter of the gut, and in the appearance of localized segmentations moving from place to place, though nowhere giving a classical peristaltic wave.

Before reducing the gut the gas was turned on into the washwater in the belly. There was presently a definite diminution of the total distension and the return of the intestines into the cavity was unusually easy.

The subsequent convalescence was marked by less than the usual shock and an absence of "gas-pains" rather unusual in this type of case.

Case four, E. McJ., woman of 50 years, operated on at the Boston City Hospital Oct. 30, 1911.

Two weeks previously Dr. P. Thorndike performed an emergency colostomy for obstruction due to cancer of the sigmoid.

After her recovery from this operation, I thought that a bowel resection and a closure of the colostomy were in order.

The operation was accordingly performed, and proved, on account of adhesions, unusually difficult and tedious, lasting an hour and a half. Excision of the section invaded by the growth and of the adjacent colostomy opening were followed by lateral anastomosis of a lax transverse colon to the lower loop of the sigmoid.

About half way through, the distension of exposed gut-coils became troublesome, and carbon-dioxide gas was applied through a gas washing-tube to the exposed intestine.

This time the compressed natural gas (used for soda-fountains) was used, a pure gas, and it was only filtered through absorbent cotton, not washed.

The reaction was very prompt (about one minute) and showed, not segmentation as in the last case, but extensive rippling peristaltic waves in the small intestine.

At the same time there was a lessening of the diameter of the gut.

The large intestine showed no reaction of either sort.

At the same time we noted a deepened respiration and presently a slower fuller pluse. The patient's color also improved definitely.

At the close of the operation the pulse had come down to 88, and was of excellent quality.

There had been no difficulty in reducing the intestinal coils within the abdomen.

After the operation the patient showed no shock at all and no form of prostration.

The next day there was a profuse bowel movement, but the anastomosis held. There were *no* gas-pains. Later there was some sepsis where drains had been inserted on account of the large denuded surfaces.

Otherwise convalescence was uninterrupted and usually comfortable.

CASES OF SHOCK AND SEPSIS.

Case five, case of pelvic and other fractures. Haymarket Sq. Relief Station, Nov., 1911. Extreme shock. Rebreathing by the long paper cone method. The pulse became fuller, the color better, but he died within four hours, about as expected.

Case six was an empyema in an adult at the City Hospital, May, 1911. On the evening after operation he was in wretched shape with rapid though not deep respiration. CO_2 and oxygen were administered just as in case one, but with no trace of a result, and he died that night.

Case seven was one of general peritonitis in a man seen a few hours after operation. He was in very desperate condition. CO_2 by the same method failed to show any effect or to avert his demise a few hours later.

Case eight was a man of 35, a Hebrew, seen at the Malden Hospital, for Dr. C. D. McCarthy Nov. 7, 1911, operated on four days before for a subacute appendix. For thirty-six hours he had been "going down hill." When I saw him he was moribund. There was obviously no sepsis, and the persistence even then of an exaggerated respiration with the pallor and the thready pulse at 130, suggested the possibility of remediable acapnia. Paper-bag rebreathing was carefully applied as in case two, and for ten minutes his pulse slowed a few beats to the minute and grew stronger and his color grew better. Then he "went to pieces" and died within the hour.

If this was acapnia it was beyond the point of recovery of CO_2 balance. Surely my treatment accomplished nothing.

With this case I concluded that clinical guessing as to the presence of acapnia amounted to little save in unusual cases.

My work on the general problem is suspended until my assistant, Dr. W. M. Boothby, comes back from his Oxford trip.

He is now studying under J. Haldane of Oxford the best methods, applicable clinically, to determine the presence or absence of a real acapnic condition in the given patient.

His trip is under the auspices of the Harvard Medical School. Dr. Henry Christian and Dr. W. T. Porter of the School have interested themselves in the matter. Dr. H. D. Arnold of the School and the City Hospital stands ready with clinical material on the medical side as do I on the surgical end.

It seems likely that this study is to grow into a matter of a school laboratory research, backed up by pure clinicians, which is just as it should be.

In the meantime, before I subside into my proper place in the matter, I submit that my preliminary rough clinical tests have demonstrated,—

First, that hysterical hyperpnea may produce general acapnia of serious grade.

Second, that Henderson's observations on the loss of peristalsis from local acapnia, and on the restoration of peristalsis by remedying the acapnia, are directly applicable to man as well as to the laboratory animal.

Third, that acapnia of the general type is readily remedied if treated promptly (cases one and two).

Fourth, that local acapnia in laparotomies is easily handled, with little apparatus, without danger of infection, and not only without loss of time, but with a time-gain due to the easy handling of intestine in normal, rather than in distended, acapnic, condition.

What the fuller research into the relation between acapnia and shock is to show, we must wait and see.

I do not fully believe in the identity of acapnia and shock, as yet, sure as I feel of the importance of acapnia in other surgical conditions.

It seems, however, that we are to be equipped within a few weeks to test out the whole question.

It will call for months of work, but apparently we have the men, trained in clinical and laboratory experience: we have the enthusiasm and the material.

It is rash to promise results, but they may be hoped for.

Clinical Department.

A CASE OF PELLAGRA THAT HAD NOT BEEN OUTSIDE OF NEW ENGLAND FOR EIGHTEEN YEARS.

BY ROGER I. LEE, M.D., BOSTON.

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(From the West Medical Service of the Massachusetts General Hospital. Richard C. Cabot, Chief of Service.)

CASES of Pellagra have been described from time to time in Massachusetts; notably by Tyler[1] of Somerville in 1862, by Fitzgerald[2] of Worcester in 1910, and by Dean[3,4] of Northampton in 1911 and 1912. White[5] has described one case in Connecticut, that had never been out of that state. Sporadic cases have now been reported in nearly all the northern states.[6]

The prevalence of Pellagra in insane hospitals of the North has been especially demonstrated in Illinois,[7,8,9] and three of Dean's four cases were in the Northampton State Hospital for the Insane; the fourth was seen in the Northampton Alms House.

The records of the Massachusetts General Hospital show the diagnosis of Pellagra to have been made positively twice, and tentatively once. This last case seems very doubtful.

The case which I report is presented with the hope of contributing some data to the epidemiologic study of Pellagra, and of stimulating the search for cases outside of the insane hospitals.

C. H. C. West Medical 183,731. O. P. D. 196,737. Entered the Massachusetts General Hospital July 10, 1912, and was discharged by July 24, 1912. He was white, married, aged 46; born in New Hampshire, living in Malden. All his life he has been a dry goods clerk. He had lived all his life in the suburbs of Boston with the exception of one winter eighteen years ago that he spent in New Orleans.

His family history was unimportant; wife is well; there are no children. He had scarlet fever in childhood, but remembers no other disease. He denies venereal disease. He uses tobacco and alcohol in moderation.

For the past three years he had had rather sharp attacks of indigestion in the spring; he never had any previous skin trouble.

Somewhat over a year ago he weighed 185 pounds, and considered himself well. About May 1, 1912, both hands began to burn and turn red. This was followed by swelling and cracking of the skin. There was burning and tingling rather than pain; there was no itching. There had been no exposure to the sun or other irritants. He stopped work on account of the appearance of his hands and stayed at home. With the onset of the trouble in his hands he began to lose weight and strength rapidly; his appetite was entirely gone. He had considerable dull discomfort over his upper abdomen without special reference to food and without vomiting. He thought he had been poisoned because, as he described it, the "poison ran out of his mouth," especially at night, and the movements of his bowels, which were loose and numbered one to two a day, were so irritating that he referred to them as getting rid of so much poison.

He came to the Out-patient Department of the Massachusetts General Hospital for treatment, and the diagnosis of Pellagra was suspected by Dr. T. J. Eastman. On his second visit to the out-patient department he was too weak to go home, and was admitted to the West medical wards.

Examination at that time showed no change in his reflexes, and negative heart, lungs, and abdomen. Both hands and wrists, sharply demarcated from the above normal skin, were symmetrically erythematous and covered with dark brown scales and crusts. The hands were not tender. On removal of a ring normal white skin was seen. There were small dark red exfoliating areas on each side of the nose and forehead. The exposed surface at the back of his neck was brown. There was no discoloration of his feet; the nipples were of normal color. There was no increase of pigment in the axillary folds or elsewhere. The tongue was red with prominent white papillae. About the anus were swollen, red, and tender tabs.

Mentally, on admission he was definitely excited, and rather confused. After admission he was quiet, moderately affable, but always reticent and evasive, and contradicted himself. No definite psychosis was made out. On being asked to submit to lumbar puncture, and to excision of a small piece of skin for pathologic examination, he became very depressed.

The temperature was normal becoming slightly sub-normal at the end of his two-weeks' stay. Pulse 80-100. Respiration 24. His weight was 126 pounds at entrance, showing a loss of almost 60 pounds in the year.

The urine on three examinations was negative. The blood showed 90% hemoglobin. The white count was 11,000 to 12,000. The red blood corpuscles were normal. The stained blood smear was negative. Wassermann reaction was negative. The systolic blood pressure varied between 105-108.

In the hospital his bowels moved once or twice daily. The stools were somewhat formed with acid reaction with a sour but not particularly foul odor. Microscopic examination of the stools was negative, Guaiac test for blood in the stools was negative.

He was given bismuth by mouth and examined with the x-ray but no residue found in the stomach after six hours. The stomach and intestines seemed normal. With the stomach tube there were no fasting contents. Ewald test meal removed after one hour showed no free HCl. The capacity of the stomach was 28 oz.

He was merely fed up. No local treatment was given his hands with the exception of two thorough soap and water scrubbings. The hands cleared up remarkably, and at the end of two weeks he presented only a dark brown gauntlet appearance. He gained three pounds and was discharged much relieved.

Dr. C. P. Ward of Atlanta, who has seen a large number of cases of Pellagra, concurred in the diagnosis, and was kind enough to investigate the home conditions of the patient. He found that the patient was considered peculiar by his neighbors, and that although he had no bad habits he did not seem to be able to keep any position as clerk for a long time. The patient and his wife were in fair hygienic circumstances, and lived on ordinary diet. They ate ordinary commercial wheat flour and denied absolutely eating maize or other corn products. This seemed to be bourne out by investigation. They took oil in no form, and it could not be found that there was any likelihood of infection through the Buffalo gnat. The only possible peculiarity of diet for some years past was that two years ago the patient and his wife bought a large amount of potatoes, and ate a great deal of that particular supply during one winter but not to any great excess or to the exclusion of the ordinary mixed diet. His wife seemed normal in every way.

The case was seen by various members of the hospital staff who could suggest no other possible diagnosis. The seasonable occurrence of the previous gastro-intestinal symptoms and the onset of the present symptom-complex in the spring seemed quite striking. The associated symptoms of salivation, gastric disturbance, and irritating stools, of very marked loss of weight, of mental disturbances of fairly pronounced character, and of the characteristic gauntlet dermatitis seemed to warrant the diagnosis of pellagra. Yet this case had not been out of New England for eighteen years. It throws no light on any of the usual theories of infection as the patient did not use corn, or oil, and apparently had not been exposed to the Buffalo gnat. Careful investigation did not disclose anything unusual in the patient's surroundings or habits of life that would suggest any possible etiologic factor.

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Reports of Societies.

THIRTY-FOURTH ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

(*Continued from No. 12, page 402.*)

REPORT OF A CASE OF RHINO-PHARYNGEAL FIBROMA.

Dr. Joseph S. Gibb, of Philadelphia, reported this case of a boy 13 years old, having symptoms of nasal obstruction for 6 months with epistaxis. Examination showed growth springing from vault, probably from basillar process, everywhere attached, and covered by mucous membrane. No pedicle. Ether was administered, and a preliminary tracheotomy performed. An effort was made to remove the growth by heavy wire snare passed through the nasal chamber, but entirely unsuccessfully. The growth was then grasped by strong post-nasal forceps and by a tearing, twisting and traction movement, combined with an effort to separate the growth from its attachments by the index finger of the operator's left hand, the growth was finally removed. The bleeding was free during the manipulation and profuse when the growth came away. The vault was packed with gauze; upon its removal there was very little bleeding and it was not replaced. The tracheal tube remained for one day; the recovery was uninterrupted. There has been no recurrence although more than two years have elapsed since operation. In his remarks on the subject of rhinopharyngeal fibroma Dr. Gibb emphasized the importance of early diagnosis. At this time the growth may be removed either by the hot or cold wire snare or avulsion with comparatively little danger; later, when the growths have attained a larger size, extended into the contiguous cavities, and formed dense adhesions, the difficulties attending removal are greater. In some cases avulsion may be employed but in the greater number of the advanced cases he believed it better and safer to use a combination of electrolysis, galvano-cauterization, and the hot and cold wire snare. One or all of these measures should be used, depending on the character of the case.

DISCUSSION.

Dr. Delavan, of New York City, spoke with reference to the various methods of removing such growth, stating that the cold wire snare was almost certain to provoke violent hemorrhage, and that the galvanocaustic loop does not cause bleeding and is therefore far superior, although there is the objection of fixing the snare about the base of a sessile growth. He stated that there are not many cases in which some form of the electrical treatment could not be employed and considered by far the best method to be the electrolytic, the only objection to this being the pain caused by the use of the needle: by this method the growth may be removed without loss of blood and without shock, but on the other hand, it requires a skilful operator for its employment.

Dr. Ingals, of Chicago, stated that he had removed a number of these growths by the electrolytic method, and had been facilitated in this by the use of a clamp insulated with ivory along the back of each blade: with it in position there was no difficulty in running the loop up back of the clamp and tightening the wire so that it would cut off the growth at the base. With reference to the injection of these growths he stated that when the tumor returns he had injected it with 20 per cent. lactic acid, running up to 35 per cent., putting in a little cocaine to prevent the initial pain and a little carbolic to prevent the afterpain. This injection he had found very satisfactory in getting rid of such a tumor a little at a time. He also stated that it was his belief the use of urate of quinine as an anesthetic would be of great advantage in these operations as it produces a long anesthesia without danger to the patient.

Dr. Harmon Smith, of New York City, said that whereas he considered the surgical and electrical methods most feasible in such cases, it was well not to lose sight of other methods, namely the injection of monochloracetic acid, in the use of which he had been most successful.

Dr. Coolidge, of Boston, called attention to the fact that a fibroma is a temporary growth, having three periods; in the first it grows rapidly, in the second it grows slowly or is stationary; and in the third it disappears spontaneously. During the rapid growth the process is serious, threatening life if left alone and also if operated on, but always followed by recurrences if removed during this period. He stated that he was particularly fond of the cold wire snare and considered the secret of making this method as safe as that by the electric wire was in taking a sufficiently long time in snaring off the growth to prevent the hemorrhage; this may sometimes take an hour. He considered the cold snare had an advantage over the hot wire in that there was less subsequent sloughing and bleeding. He also said it was very important to realize how heavy a snare would be required to remove the tumor in question. When the period of slow growth has been reached it is possible to do very little operating, and in the third stage there is no necessity for any interference.

Dr. Norval H. Pierce, of Chicago, considered the blood supply to these tumors the most important part of the subject, and he considered the electrolytic method or the injection method referred to by Dr. Smith as the very best, at least until the formation of fibrous tissue has taken place and its contraction strangles off the blood vessels, since in the formative stage the blood supply is much richer than at any other time. This blood supply comes only from the base of the tumor and this is the point at which to attack it.

Dr. Mosher, of Boston, stated that he usually detached such tumors either by the cold wire snare or by avulsion, but that the injection method had proved a great comfort to him, since it seemed to be very satisfactory in preventing a recurrence of the growth.

APHTHOUS ULCERATION OF THE UPPER AIR PASSAGES IN PULMONARY TUBERCULOSIS.

Dr. John Mackenzie, of Baltimore, stated that it has long been debated whether the ulceration in question was a specific ulceration due to the special cause of tuberculosis. After a preliminary discussion of the subject the author gave a brief review of the controversy to which it had given rise and recalled in minute detail the description he himself had given of the ulcers and their relation to pulmonary tuberculosis which he had published in 1881 in the *Monatschrift für Ohrenheilkunde* and in

the *Transactions of the Medical and Chirurgical Faculty of Maryland* in the following year (1882). His histological observations went to show that these ulcerated areas are the result of a circumscribed, superficial, "diphtheritic" inflammation of the mucous membrame—that is to say, an infiltration of the tissues with so rich and rapid cell proliferation as to end in necrosis and sloughing of the superficial layers. According to his investigations this form is due to the corrosive action of the sputum from the lung cavities, through the medium of some unknown bacterium or bacteria, and he supported his contention by the following facts: (1) The predilection of the ulcers for those places which are in constant contact with the sputa, viz. the trachea and bronchi, and especially the posterior wall of the former and the laryngeal surface of the epiglottis; (2) the fact that they increase in number as the lungs are approached and that they are much less common in the upper portion of the larynx and trachea; (3) that they may be traced from the bifurcation of the trachea to the division of the bronchial tubes, where in all cases they become visible only in one tube, which is that leading to a cavity; (4) their absence in the bronchi of lungs which are not the seat of cavities or advanced tubercular change; (5) their occasional presence in the esophagus, stomach and intestines; (6) their occasional appearance in suppurative pneumonia and gangrene of the lung. He therefore regarded them as an inoculation, so to speak, of the mucosa with the detritus from the broken down pulmonary tissue, leading to a loss of substance pathologically distinct from, but possessing some of the characteristics of, the tubercular ulcer. Although due to the disintegration in the lung, he did not regard them as specific tubercular products, for the following reasons: (1) They differ histologically in no respect from similar ulcers found on the mucosa of non-tuberculous subjects; (2) that well pronounced circumscribed infiltration due to necrobiosis and sloughing, and identical with these aphthous ulcers, is found, though not as frequently and abundantly in the mucosa, especially of the trachea, as a secondary complication in diseases other than pulmonary turberculosis (gangrene of the lung, perforation of the trachea by broken down, sloughing bronchial glands); (3) that on other mucous membranes, under similar conditions, namely as the result of a neighboring longstanding gangrenous process, or the constant passage over them of an ichorous discharge, ulceration is found identical with that under review, as, for example, in the vagina as the result of gangrene of the uterus. He concluded therefore that the ulcers were relative to the lung affection insofar as they were produced by the corrosive action of the sputa, but that in the then state of our knowledge they could not be regarded as specific tubercular products. At the time these observations were made the study of the subject was rendered infinitely more difficult, much more than it is at present, by our scant knowledge of its bacteriology and the technique of examination then in use was ridiculously primitive when compared with the methods of precision and exactness of modern scientific research. The bacillus had not been isolated and the problem had to be worked out without the light of that discovery. For these reasons it is not surprising that there should have been so much divergence of opinion on the subject. But even with modern methods there was still no consensus of opinion among authorities on the subject (the vast majority of pathologists and laryngologists holding that the aphthous ulcer is a true tubercular product) until the atmosphere of the question was clarified by the researches of Ziba, in the Pathological Institute at Strassburg. (Archiv. für Laryngogolie, XXIV, Band, Heft 3, 1911). As the result of his histological and bacteriological researches he arrives at the same conclusions reached by Dr. Mackenzie, and believes with him in the existence of the aphthous, as contra distinguished from the true tubercular, ulcer of the trachea and larynx, in pulmonary tuberculosis. He has found that it is due to streptococci in the sputa from the lung cavities; that infection takes place from the inner surface of the mucosa and produces an inflammatory process associated with tissue necrosis and which leads to the formation of the aphthous ulcer; that the latter may become later tubercular, but in the aphthous ulcer originally there is neither in its base or walls any trace of miliary tubercle. This conception of its nature is furthermore supported by bacteriological examination. Only in the ulcers in which miliary tubercles were discovered were tubercle bacilli found, and solely in the region of the miliary tubercle itself. In all other cases, both miliary tubercle and bacillia were absent. Even in those cases in which tubercle bacilli were found in the secretion which covered the mucosa, both characteristic structure and bacillus were wanting. Aphthous ulcerations of the larynx and trachea produced by streptococci are necessary to or invite the development of tubercular ulceration. This is all the more probable when it is remembered that they appear in greatest numbers in the last stages of pulmonary tuberculosis. At this period the great majority of the ulcers are strepto-mycotic in character and secondary tuberculosis only develops in them here and there.

DISCUSSION.

DR. NORVAL H. PIERCE, of Chicago, said that the aphthous ulcers found in the throats of those suffering from acute streptococcus infection are well known, and he believed the histological character of these aphthous ulcers as they occur in tuberculosis are indentical with the histological character of the streptococcic ulcerations. He referred to an epidemic occurring this winter in Chicago, which had caused some deaths from sepsis and meningitis, the original focus of infection apparently being in the pharynx, and characterized by very slight local symptoms; the tonsils were but very slightly enlarged, the crypts not filled with the ordinary hard fibrous exudate as in acute tonsillitis, but an exudate resembling thick pus; associated with this he had in several cases noticed these aphthous ulcers occupying the anterior folds of the pharynx, and giving on bacteriological examination a pure streptococcus culture which however varied from the ordinary streptococcus in that it possessed a very thick capsule.

DR. SWAIN, of New Haven, considered that in the past it had too frequently been taken for granted that these ulcers were tuberculous simply because they occurred in patients having tuberculosis, while in reality they were streptococcic ulcerations which were easily healed by the application of almost any stimulant. He recalled having frequently met with this condition at the autopsy eable.

DR. B. R. SHURLY, of Detroit, stated that in most sanatoria for tuberculous patients there was no

laryngologist on the staff, the treatment of such patients being essentially in the hands of the tuberculosis specialist, and in this way he accounted for the fact that so few of these cases are seen now in comparison with former years. He also stated that one almost never saw a case of laryngeal tuberculosis in its primary form, there always being a greater or less lesion to be found elsewhere.

(To be continued.)

Book Reviews.

Quain's Elements of Anatomy. Eleventh edition, Vol. II, Part 1, Microscopic Anatomy. By E. A. Schäfer, with 1001 engravings and 21 colored plates. Longmans, Green and Co. 1912

Detailed review of this established work on anatomy is unnecessary. It stands as one of the very best text-book in the English language on the comprehensive subject of which it treats, and each edition carries forward the knowledge of the subject to its latest development. In this volume, which is intended to serve as a text-book of microscopic anatomy, the subject matter has been rearranged and rewritten, and many new figures added. It is impossible too strongly to commend the illustrating of the volume. It is difficult to see how a greater degree of perfection could be obtained, not only in the drawings themselves, but in the manner of their reproduction. This is particularly true of the numerous colored plates which represent as adequately as is possible under the necessary limitations of a single dimension, the microscopic and macroscopic appearances of various structures and tissues. As has always been the custom in this work, references are freely given and the text so arranged with headings in various types that ease of reference is secured.

A Manual of Personal Hygiene. Proper Living upon a Physiologic Basis. By American Authors. Edited by Walter L. Pyle, A.M., M.D. Fifth edition; revised and enlarged. Philadelphia and London: W. B. Saunders Company. 1912.

The fourth edition of this now familiar work was reviewed in the issue of the Journal for Aug. 11, 1910 (Vol. clxiii, p. 263). This fifth edition has been enlarged 44 pages by minor additions and by the incorporation of a new chapter on "Food Adulteration and Deterioration," by Dr. Harvey W. Wiley. The book maintains its former standard of excellence, and there is nothing to add to the opinion of it expressed in our previous review.

X-Ray Diagnosis and Treatment. By W. J. S. Bythell, B.A. Cantab., M.D. Vict., and A. E. Barclay, M.D. Cantab., M.R.C.S., L.R.C.P. London: Henry Frowde, and Hodder and Stoughton. 1912.

This volume in the series of Oxford Medical Publications is stated in its subtitle to be "A text-book for general practitioners and students." It is intended not as a technical work on radiography, but as an assistance in the interpretation of x-rays and in their therapeutic use. It is illustrated by a series of 116 admirable skiographic plates, all taken from cases under the personal observation of the authors. These are not meant to constitute a complete atlas, but merely to illuminate the text for its better understanding. An appendix describes the x-ray apparatus and technic. The book should prove of permanent value to the increasing, and already almost universal number of physicians who need and are able to employ the x-ray as an important adjunct in the diagnosis and treatment of disease.

Institutional Physiology. By Percy Goldthwait Stiles, Assistant Professor of Physiology in Simmons College. Illustrated. Philadelphia and London: W. B. Saunders Company. 1912.

This book is somewhat equivocally described in its preface as "a study in elimination." This statement, however, refers rather to its method of composition than to the physiologic function which it describes. The key-word of its discussion is energy, regarded as "latent or potential in those chemical compounds which are susceptible of oxidation." The subject is adequately treated in 27 brief, lucid chapters. Especial commendation is due the temperate, judicious attitude of the chapter on alcohol.

Some Recently Discovered Letters of William Harvey, with Other Miscellanea. By S. Weir Mitchell, M.D., LL.D., F.R.S. With a Bibliography of Harvey's Works, by Charles Perry Fisher. Philadelphia. 1912.

This monograph, printed in the transactions of the College of Physicians of Philadelphia, constitutes the first publication of a recently discovered series of important letters from Harvey to Lord Fielding at Venice, preceded by an account of Harvey's life, and accompanied with worthy comment by Dr. Mitchell. The frontispiece shows the interior of the vault in which Harvey is buried in the parish church at Hempstead, in the County of Essex, England; and the other illustrative figure shows the reduced reproduction of a rubbing from the breastplate of his leaden sarcophagus, made by Dr. Mitchell in 1880. The appended bibliography contains titles of 47 editions of Harvey's several works, together with 20 others not properly classed under his printed works. The letters are of extreme interest, and throw important light on the character and work of Harvey and on his times; and the volume in which they are presented constitutes a very valuable contribution to his literary medical biography.

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THREE IMPORTANT MEDICAL CONGRESSES.

THE fortieth annual convention of the American Public Health Association was held in Washington, D. C., from Sept. 19 to 21. A large number of delegates was in attendance. Among the papers presented was one by Dr. Woods Hutchinson of New York, on "The Importance of Negative Eugenics."

"Pointing out the impracticability of the plan of Sir Francis Galton of London, who advocated the intermarriage only of those persons who represented the highest development in physical, moral and intellectual powers as the best method of improving the race, Dr. Hutchinson urged that the question now was not how to produce the really fit, but how to prevent the production of the unfit. He said the time to start the plan was in childhood and that symptoms of feeble mindedness, insanity and criminality could be detected in the child from the ages of three to ten years.

"All children who were found in this class, he said, should be segregated into open air colonies and every attention given to bring them up to as high a standard as possible. He suggested the sterilization of grown persons in this class as a means of prevention of the ill-born. He added that the greatest reservoirs of degenerates were in rural communities, colonies where feudists, outlaws, moonshiners, etc., thrive under animal conditions and the conditions under which the idle rich live in this country. The doctor asserted from 30 to 50 per cent. of the drunkenness and from 40 to 80 per cent. of the prostitution was caused by mental defects. 'Prevent the ill-born and you will have no use for your asylums, jails, criminal courts and police officers.'"

At the first day's session, a defense of cold storage was made by Dr. Harry E. Barnard, food commissioner of Indiana, who pointed out the great advantages of this means of preserving food, a means which needs merely to be regulated and protected from abuse. Dr. Charles W. Stiles presented a statement of the work of the Rockefeller Sanitary Commission for the Eradication of Hookworm Disease. Dr. John J. Furell reported that over 200,000 persons have already been treated for this infection in North Carolina.

Dr. George A. Soper, president of the Metropolitan Sewerage Commission of New York, read a paper presenting some of the recommendations of that commission.

"They were that no garbage, offal or solid sewage matter should be visible at any time; that no marked discoloration or turbidity of the water should be allowed, except in the immediate vicinity of sewer outfalls, and that the quality of water at points suitable for bathing and oyster culture should conform substantially as to bacterial purity to the drinking water standard.

"This is not possible, the commission holds, in the harbor north of the Narrows or in the Arthur Kill, but in the Lower Bay and elsewhere bathing and the taking of shellfish are not free from danger of disease within a mile of sewer outfalls. The commission secured the services of several experts to help study the problem of harbor pollution. The unanimous opinion of the experts was that provisional standards of cleanness for the harbor should be established, and so framed as to require that the waters should look clean.

"The present condition of the harbor was not a serious menace to health, declared one expert, although this was no reason why sewage should be permitted to defile the water. It was unnecessary that the waters of the harbor be kept pure enough to make bathing therein perfectly safe, the experts held, provided suitable nearby bathing places were kept clean. It was impracticable, they reported, to keep the water of the inner harbor pure enough for oyster culture, although oyster grounds near the sea ought to be protected."

At its closing session, the Association elected the following officers for the ensuing year: President, Dr. Rudolph Hering of New York; vice-presidents, Drs. W. R. Batt of Harrisburg, Pa.; James Roberts of Hamilton, Ont., and J. E. Monjaras of Mexico; secretary, Selkar M. Gunn, and treasurer, D. Livingston Farrand.

The next convention will be held at Colorado Springs, Colo., in 1913.

During the current week, from Sept. 24 to 27, the fourteenth annual meeting of the American

Hospital Association is being held at Detroit, Mich.

This association "is composed of hospital trustees, managers, trustees, contributors and officers of associations founded to promote the interests of organized medical charities. It aims to promote economy and efficiency in hospital management, to educate the public regarding hospital needs, to disseminate information regarding every phase of hospital work, to assist those who are carrying hospital burdens, and in every possible way, to improve the care of the sick.

"During the dozen or more years of its existence, it has given much study to hospital construction, called attention to defects and mistakes, pointed out causes of difficulties and methods of improvement, thereby rendering a distinct service to hospitals recently constructed, and to the hospitals of the future.

"It has devoted time and earnest thought to improving methods of bookkeeping and accounting for hospitals, and has recommended a system of uniform accounting and reporting applicable alike to larger and smaller hospitals, thus aiding materially in bringing about more systematic and business methods in its own particular field.

"Keeping in view the interests and needs of hospitals of varied sizes and conditions, of the nurses, and of the public, it has given a serious and prolonged study to the training of nurses, and has recommended a course of training which has been adopted by large numbers of hospitals in the United States and Canada, thus doing much to standardize the work of that important department, and render it more efficient.

"Questions regarding hospital finance, and prevention of waste, medical organization, management of infectious diseases, the outpatient department, social service, municipal needs and policies relating to the care of the sick, hospital dietaries, the best method of purchasing, the training of superintendents and heads of departments, hospital accidents, and a great variety of similar practical subjects, important to all hospitals, have been discussed."

At the present meeting, after the reports of the several committees, there have been presented a number of original papers, among which may be mentioned one on "Nursing Standards and the Supply of Pupil Nurses," by Dr. Frederick A. Washburn, Administrator of the Massachusetts General Hospital, Boston, and vice-president of the Association. In addition to these proceedings, there is being held also a non-commercial exhibit of useful hospital appliances and devices, under the direction of Miss Charlotte S. Aikens, of Detroit.

During the current week, also, are being held in Washington, D. C., the sessions of the Fifteenth International Congress on Hygiene and Demography. The first day of the congress, Sept. 23, was opened with the presidential address of Dr. Max Rubner, of the University of Berlin, who gave a critical and historic survey of the significance of hygiene and demography in the sanitary provisions of the nations. During the forenoon there were meetings of all the sections; and in the afternoon a joint session of the sections on state and municipal hygiene and the hygiene of traffic and transportation, to consider public health organization and administration in England and in Germany. In the evening there was a plenary session, at which Dr. Sir Thomas Oliver, of the University of Durham College of Medicine, Newcastle, England, made an address on "Dust and Fume, Foes of Industrial Life."

On Tuesday morning, Sept. 24, there was another joint session of the sections above mentioned to continue consideration of public health organization and administration in Denmark, in Japan, and in the United States and its colonies. At the plenary session on Tuesday evening, there was an address by Dr. Jacques Bertillon, chief of the bureau of municipal statistics, Paris, on "The Mortality and the Causes of Death by Professions." On Wednesday evening, Sept. 25, there was a plenary session, with an address by Dr. Zalin, director of the Bavarian Statistical Office, München, Germany, on "The German Labor Insurance and Its Socio-Hygienic and Socio-Political Significance."

As we noted editorially in last week's issue of the JOURNAL, Massachusetts has a particularly fine exhibit at this congress.

"In this exhibit there is material from the State Board of Health, the Massachusetts Trustees of Hospitals for Consumptives, the Boston Consumptives Hospital, Boston Health Department, Boston Association for the Relief and Control of Tuberculosis, Milk and Baby Hygiene Association, Child Labor Committee, Boston Dispensary, and several other organizations."

It would seem an excellent idea, if, after the close of the congress this exhibit could be transferred from Washington to Boston. Here it would serve not only to demonstrate the part taken by our city and commonwealth in the congress, but to disseminate in our community knowledge of and interest in the hygienic advances there exemplified. We believe the advantages of such an exhibit would be great, and urge the adoption of a plan for its execution.

BURTON AND EUGENICS.

THERE is verily no new thing under the sun, and even the typically modern science of eugenics seems to have had its more primitive prototypes. A correspondent of the *British Medical Journal* recently called attention to a passage in Burton's "Anatomy of Melancholy," which, in other phraseology, seems to foreshadow the whole category of eugenic theories.

Robert Burton, the author of this remarkable work, was "a divine who dabbled in medicine." He was born at Lindley, in Leicestershire, England, on Feb. 8, 1576, studied at Brazen Nose and Christ Church, Oxford, was admitted to orders, and lived as vicar and rector to the day of his death. He was an omnivorous and miscellaneous reader, and though "his company was very merry, facete, and juvenile," he was, like many wits, much given to melancholy. He died, and was buried in Oxford Cathedral on Jan. 27, 1640.

His "Anatomy of Melancholy," published in 1621 under the pseudonym of Democritus Junior, has been called "the delight of the learned, the solace of the indolent, and the refuge of the uninformed." It is certainly one of the most marvellous compilations in the English or any other tongue. Probably as few living persons have read it all through as have read the whole of Spenser's "Faerie Queene," or Sidney's "Areadia," or Richardson's "Clarissa Harlowe." Everyone ought to read it, however, particularly every doctor, most of all every medical student in his first year, as a wholesome corrective to his study of the anatomy of the body.

The passage prefiguring the science of eugenics is from subsection vi, of member i, of section ii, of part i, and is entitled "parents a cause (of melancholy) by propagation." It may be quoted in part as follows:—

"That other inbred cause of melancholy is our temperature, in whole or part, which we receive from our parents, which Fernelius calls *Praeter naturam*, or unnatural, it being an hereditary disease; for as he justifies, such as the temperature (temperament) of the father is, such is the son's, and look what disease the father had when he begot him, his son will have after him, and is as well inheritor of his infirmities as of his lands. And where the complexion and constitution of the father is corrupt there (saith Roger Bacon) the complexion and constitution of the son must needs be corrupt, and so the corruption is derived from the father to the son. Now this doth not so much appear in the composition of the body, according to that of Hippocrates, in habit, proportion, scars, and other lineaments; but in manners and conditions of the mind."

Then follow several fertile pages of examples of inherited defects, and a paragraph on the evil results of maternal impressions, after which the writer proceeds:—

"So many several ways are we plagued and punished for our father's defaults; in so much that (as Fernelius truly saith) *'it is the greatest part of our felicity to be well born; and it were happy for humane kind, if only such parents, as are sound of body and mind, should be suffered to marry.'* An husbandman will sow none but the best and choicest seed upon his land; he will not rear a bull or an horse, except he be right shapen in all his parts, or permit him to cover a mare, except he be well assured of his breed; we make choice of the best rams for our sheep, rear the neatest kine, and keep the best dogs; *'quanto id diligentus in procreandis liberis observandum?'* and how careful then should we be in begetting of our children? In former time, some countreys have been so chary in this behalf, so stern, that, if a child were crooked or deformed in body or mind, they made him away; so did the Indians of old (by the relation of Curtius), and many other well-governed commonwealths, according to the discipline of those times. Heretofore, in Scotland, (saith Hect. Boëthius) *'if any were visited with the falling sickness, madness, gout, leprosie, or any such dangerous disease, which was likely to be propagated from the father to the son, he was instantly gelded; a woman kept from all company of men; and if, by chance, having some such disease, she were found to be with child, she with her brood were buried alive':* and this was done for the common good, lest the whole nation should be injured or corrupted. A severe doom, you will say, and not to be used amongst Christians, yet more to be looked into than it is. For now, by our too much facility in this kind, in giving way for all to marry that will, too much liberty and indulgence in tolerating all sorts, there is a vast confusion of hereditary diseases, no family secure, no man almost free from some grievous infirmity or other. When no choice is had, but still the eldest must marry, as so many stallions of the race; or, if rich, be they fools or dizzards, lame or maimed, unable, intemperate, dissolute, exhaust through riot (as he said) *'jure hereditario sapere jubentur';* they must be wise and able by inheritance; it comes to pass that our generation is corrupt; we have many weak persons, both in body and mind, many feral diseases raging amongst us, crazed families, *'parentes peremptores';* our fathers bad; and we are like to be worse."

Thus Burton not only outlines modern eugenics but refers to it as already a thing antedating his own time. His remarks are not the less like those of the eugenist of today for their terminal pessimism. In this connection we cannot refrain from quoting a few sentences attrib-

uted to Dr. Forbes Ross, of London, who believes that modern civilization tends to curtailment of the best types and reckless multiplication of the dissolute and unintelligent.

"The better classes of England cannot keep pace with the fearful stress of taxation and other burdens imposed upon them and are, therefore being wiped out. In other words, modern legislation in this country is replacing the better classes by a mixture of 'sheep and wild beasts,' and the nation is being propagated by those retaining primordial qualities and the primitive instinct, and the average Englishman at this rate will soon have a depraved gorilla countenance."

"Our fathers bad, and we are like to be worse," concludes Burton; yet many of the finest achievements of English and of human genius have been since his time. It is said to be the best safeguard of a race to believe itself always on the verge of destruction. Perhaps Burton and Dr. Ross and some of the modern eugenists, however, take things somewhat too seriously, or rather without a sufficiently serious trust in the laws which have made and thus far preserved us a species.

REPORT OF THE MASSACHUSETTS STATE BOARD OF INSANITY.

The thirteenth annual report of the Massachusetts State Board of Insanity, recently published, covers the year ending Nov. 30, 1911, a volume of upward of three hundred pages. This document gives a comprehensive idea of the enormous work entailed in the care of the insane and feebleminded charges of the state. From one point of view, the figures are always discouraging; but from another one may find hope that the great problems underlying the care and treatment of the insane are gradually finding adequate solution. On Oct. 1, 1911, there were 15,692 persons under the care of the state, this being 1 to every 218 of the estimated population. Nearly 13,000, or 82%, were classified as insane, upwards of 2000, or 13%, as feebleminded, 4% as sane epileptics, and 1% as inebriates. Although statistics in this matter should always be regarded as approximate rather than an exact statement of the situation, it is of interest to note that the estimated increase of the insane under care for the year was 340 as compared with 522 the previous year, with an average increase of 355 during the last twenty-five years. This so far as it goes suggests the possibility that the much talked of increase of the insane is not to be taken too seriously. A further encouraging fact is that during the year under consideration all voluntary admissions to public institutions, including the McLean Hospital, were 237 as compared with 200 the previous year and 194 the average for the last five years. There can be little doubt that the attitude of the public toward institutions for the insane is changing, and that the coming years will see a very decided tendency toward voluntary treatment at hospitals for the insane in the same manner that has been noticeable for diseases of other character.

In the present state of our knowledge statistics regarding the causes of insanity are of relatively small value, but here again it is altogether probable that with renewed study of etiological factors and increasing knowledge of extrinsic and intrinsic causes, a more adequate classification will be forthcoming.

A serious problem and one which is attracting much attention, not only on the part of physicians but also of sociologists and others interested in the public welfare, is the question of the feebleminded and their proper care. The statistics show that there has been a distinct increase in this class during the last year, and that as a result the provisions for their institutional care are adequate. It is the opinion of the state board that at least 100 additional beds each year should be provided for this class in our public institutions; whereas the appropriations granted have been inadequate to meet this demand. It is becoming increasingly evident that the segregation of the feebleminded is a matter of the utmost importance to the social welfare, and that a most definite economy would be secured by providing adequate accommodations. The state board is at present engaged in an enumeration of those who should receive immediate care, and for whom there is no room at the two existent institutions. When this enumeration is made, a more definite statement will be forthcoming of the exact status of this most serious problem. It should in the meantime be strongly impressed upon legislators and upon the public at large that every legitimate effort should be made to prevent the procreation of this feebleminded class, which so far as our present knowledge and laws go may only adequately be accomplished by strict segregation. It is probable that distinct advance will be made, first, in facing, and, secondly, in meeting this problem.

Dr. E. E. Southard, pathologist to the state board of insanity, presents an interesting and significant report. The establishment of this position has been amply justified by the increased interest in pathological and other work coming under its general supervision. The stimulus which the work of the pathologist has brought toward active work in the various institutions is evidenced by the scientific papers published and by the work in contemplation.

Perhaps the most significant step in advance during the last year has been the opening of the Psychopathic Hospital under the direction of Dr. Southard. Although in active operation for about two months only, the wards have rapidly filled and an out-patient department with carefully systematized work has been established. It is particularly encouraging that patients show a willingness to enter this hospital for observation as to their mental state to a degree not hitherto attained at other institutions. It is altogether probable, therefore, that one of the main objects of its establishment will be attained, namely, the recognition and possible prevention of mental disease in its early stages.

In general, this report is suggestive reading to those interested in the broader aspects of our social life as well as to the increasing body of workers who are personally attempting to solve the extraordinarily difficult problems which mental alienation in its various forms presents.

EXPERIMENTS IN SHEEP-BREEDING.

IN the issue of *Science* for Sept. 20 (Vol. xxxvi, p. 378), is an extremely interesting special article by Dr. Alexander Graham Bell on certain sheep-breeding experiments conducted at his summer place at Beinn Bhreagh, near Baddeck, Cape Breton Island, Nova Scotia. The article is from the *Beinn Bhreagh Recorder*, a unique typewritten periodical, limited to five copies.

The experiments in question were undertaken to determine whether it were possible by selective breeding to create a variety of sheep having four functional nipples. Most sheep, ewes and rams, have only two nipples; but some were observed to have a rudimentary supernumerary pair. The latter kind were carefully selected and bred together, with the result that in a few generations, all four nipples became functional, and a new and definite breed of sheep was established. Moreover, it was observed that these four-nippled sheep produced a much larger percentage of twins than the common two-nippled variety. This was of great economic advantage, for it enables a farmer to raise two lambs for every ewe kept and fed through the winter, and thereby nearly doubles the profit of sheep-raising.

The next phenomenon was the occasional appearance of a lamb with four functional and two rudimentary nipples. By careful breeding of these sheep, over a somewhat greater period of time, there was then similarly established a definite variety of sheep with six functional nipples and a still higher percentage of twin births. Moreover, it was observed that by increasing the feed of the ewes just before mating, the percentage of twin conception could be still further increased. But if this forced feeding were continued, one of the twins usually died *in utero*. Whereas by reducing the feed during pregnancy, both twins were usually carried to yeaning time and born healthy. This observation again tends to economy of sheep-feeding during the winter.

Another interesting observation, made as a by-product of these experiments, was that though black lambs sometimes appear among the offspring of white ewes and rams, yet white lambs never appear among the offspring of black parents. Presumably sheep were originally all black. The white variety appeared as an albino and by selection, for some better adaptation, became established as the predominant strain. But the black type still reappears as a reversion and breeds true.

The experiments at Beinn Bhreagh are of great intrinsic interest, and contribute not a little material to the accumulating scientific data on heredity. Probably sheep-breeding has been an object of human attention for some thirty-five hundred years, at least since the time "When Jacob grazed his uncle Laban's sheep." Yet it has remained for Dr. Bell to work out some of its problems far better than has been done before. His procedure is more rational, though perhaps less picturesque, than Jacob's peeled wands. In accomplishing his results he has followed the scientific sequence of observation, interpretation, experiment, demonstration. His results seem half magical, but have been attained solely by the method of constructive investigation.

"This only is the witchcraft he has used."

A RECENT IMMIGRATION DECISION.

Much attention has been directed in the last few months to a decision[1] of the Solicitor of the Department of Commerce and Labor, refusing a warrant for the arrest and deportation of an alien who had developed manic-depressive insanity within three years after landing in the United States. The medical certificates in the case stated that while the exciting cause of the insanity was subsequent to landing, the essential and true cause was a constitutional psychopathic tendency and mental instability which were hereditary and hence existed prior to landing. This decision made impossible the deportation of a class of insanities which formerly had furnished about 350 deportations annually from New York State alone.

Just recently an even more flagrant ruling was made by Secretary Nagel. Rewke Palayes, an eleven-year old Russian girl, landed from the steamship "Rotterdam," on June 13, 1912. She was certified as an imbecile by the medical officers at Ellis Island. On July 13, 1912, she was landed by order of Secretary Nagel.

The ground for his ruling as given in a statement to the press[2] was that after she left her foreign dwelling place, "constructively" she became a resident of the United States, where her father was a naturalized citizen. The immigration law considers the minor children of naturalized citizens to be themselves citizens, provided they are residents of the United States. From the standpoint of the evident intent of the law, as well as on the basis of common sense it is ludicrous to consider that a person can reside, even "constructively," in the United States, when he has never even landed on its shores or been within its boundaries. From a different standpoint, it is no small matter that the Secretary of Commerce and Labor should by such sophistry admit an imbecile to this country. While up to July 17, the Secretary had not rendered a written opinion on this case, the ruling as it stands with the explanation offered, can safely be assumed to constitute a very dangerous and radical precedent. The unwarranted admission of even one more imbecile is a serious matter. The creation of a precedent for a succession of such admissions can only be condemned in unqualified terms.

An opposite view was taken by the Supreme Court in the case of Zartirian vs. G. S. Billings,[3] Commissioner of Immigration for the Port of Boston. In the Zartirian case, the alien, a minor child certified to have trachoma, was coming to its father in this country, he being a naturalized citizen. The case was in every respect comparable to the Palayes case. The Supreme Court ruled that the alien child was not a citizen because it could not have resided in the United States when it had never even legally landed. Such a case did not come within the terms of the statute in the opinion of the Court, providing that a minor child of a naturalized citizen should also be considered a citizen, if it was resident in the United States. It was further pointed out that Congress has never said that an alien child coming for the first time to join a naturalized parent in this country, should be allowed to land when suffering from a dangerous contagious disease.

Too often conditions which the law excludes are allowed admission. Not long preceding the Palayes case, Mariase Lipschutz, who had been certified for feeble-mindedness, was ordered landed. This alien aged 25, arrived on the steamer "Campanello," on February 25, 1912; was certified on February 28, and was ordered landed on March 28, 1912, by order of Secretary Nagel. The ostensible object of this admission was to permit the alien to visit a sick relative.

The public has a right to demand protection against the admission of dangerous aliens. There is no more serious danger connected with immigration than that of the entrance of mental defectives. The administration of the Bureau of Immigration and Naturalization by the Secretary of Commerce and Labor, must be absolutely divorced from politics and partiality.

[1] Decision No. 120, Commerce and Labor Dept.
[2] Admitting Diseased Children, Edit. *N. Y. Times*, July, 1912.
[3] Decision handed down by Justice Day, Jan. 7, 1907.

LEPROSY IN THE UNITED STATES.

Two cases of leprosy were reported to the Public Health Service by the Michigan Board of Health in April and May respectively. Both cases were in Russian Jews born in Courland, Russia. One of these had resided in Bay City, Michigan, for 19 years. This case is now under quarantine. The other case is known to have lived in the vicinity of Bay City for three years. He broke his quarantine in Michigan, was later apprehended in Buffalo, N. Y., escaped from detention there, and his present whereabouts is unknown.

The weekly bulletin of the U. S. Public Health Service for August 30, 1912, commenting on

these two cases, draws attention to the need for some definite policy which will act uniformly throughout the country for the control and segregation of lepers. In 1911, 41 cases of leprosy were reported in the continental United States distributed among 19 states. Three states only, California, Massachusetts and Louisiana, have established leprosaria for the proper care and segregation of lepers. While many states feel that the number of lepers in their territory is so small as to make a special institution for their care impracticable, it is nevertheless at least a question whether the sanitary welfare of the community does not make imperative the adequate provision for such cases. Several cases have developed in persons born in the United States.

While it is true that long and intimate contact seem necessary for the propagation of leprosy from one person to another, it must be remembered that we are dealing with a specific infectious disease, and that each case is a possible focus of infection and spread of the disease. Segregation naturally works certain hardships on the persons affected, but consideration for future generations as well as the avoidance of an increased public burden in the care of a growing leper population, demands proper segregation and control of every case. This segregation while in the interest of the community at large, must work just as little inconvenience and hardship on the leper as is practicable. Every effort must be made to stamp out the disease completely, while it is infrequent. Segregation will do this, and sanitary wisdom and foresight make it of pressing importance.

MEDICAL NOTES.

HONOR FOR A SCOTCH ANATOMIST.—It is announced from Scotland that Dr. Sir William Turner, professor of anatomy at the University of Edinburgh, has been appointed a foreign knight of the Prussian Order of Merit.

MORTALITY FROM SNAKEBITE IN AFRICA.—The total number of persons killed in Africa by snakebite last year is said to have been 22,000.

BUBONIC PLAGUE AT HAMBURG AND HAWAII.—Report from Hamburg, Germany, states that on Sept. 16 two cases of bubonic plague were discovered in that city aboard a British steamer from Rosario, Argentina. One of these has since died, the other is in a hospital at the quarantine station.

Report from Washington, D. C., states that on Sept. 18, a plague-infected rat was caught at Klaa, Hawaii, 250 miles distant from Honolulu.

TYPHOID CONTAMINATION OF WATERS.—Report from Washington, D. C., on Sept. 19, states that Jamaica Bay, L. I., and the Potomac River for 75 miles below Washington are both extensively polluted by sewage containing typhoid bacilli. It is from Jamaica Bay that the so-called Rockaway oysters are taken, and the risk of using them is therefore considerable. Evidences of typhoid contamination have been found also in other waters, notably at the town of Niagara. The condition there has been described by Dr. McLaughlin, of the United States Public Service:

"In 1907 this city of Niagara Falls had a typhoid death rate of 222.4 per 100,000 population and an average of 130 for the last ten years. This is the heaviest typhoid death toll recorded anywhere in the civilized world, and it by no means tells the whole story which is written in the suffering of many people in every part of this country and Europe who have carried the seeds home with them as the largest part of the price of their visit to America's famous natural wonder.

"This condition at Niagara Falls is not wholly one of its own creation. It is true that the people there might recognize the danger of locating their water supply in the Niagara river, but they are not responsible for the condition of the river because it is the outlet of the sewage from the cities above. The Niagara river is boundary water, and neither the state of New York nor the Federal government can control its use."

BEQUEST TO A MEDICAL SCHOOL.—Report from Tokio, Japan, on Sept. 16, states that the will of the late General Count Marssuke Nogi requests that his body be given to the local medical school for dissection.

NEW ENGLAND.

A CHARITABLE BEQUEST.—The will of the late Helene Maria Theresa Holly, filed for probate on Sept. 17 at Stamford, Ct., contains among many charitable bequests, one of $5000 to the New York Society for the Ruptured and Crippled.

TYPHOID IN MASSACHUSETTS.—Report from Westport, Mass., on Sept. 17, states that there are in that town at present, seven cases of typhoid fever in two families. Both these families own dairies which produce milk that is sold in

the neighboring cities of Fall River, and New Bedford.

Smallpox at North Andover.—Report from North Andover, Mass., states that on Sept. 18 two cases of smallpox were discovered in that town, and promptly isolated.

Fire at Adams Nervine Hospital.—On the evening of Sunday, Sept. 22, there was a slight fire on the roof of the Adams Nervine Hospital, Jamaica Plain, Mass. The patients were not disturbed. The damage is estimated at $40.

Progress of the Human Quadruplets.—The human quadruplets, whose birth was noted in the issue of the Journal for Aug. 15, (vol. clxvii, p. 234), are reported all to be doing well. All have gained and now weigh respectively 4 lbs. 10 oz., 4 lbs 4 oz., 4 lbs. 3 oz., and 5 lbs. It is interesting to note that the smallest two babies have gained more than the largest, and that the weights of all now fall within 13 oz. of one another. They have been named Virginia, Eleanor, Barbara, and Louise.

Opening of Glover Hospital.—On Monday of last week, Sept. 16, the new Glover Home and Hospital, at Needham, Mass., was opened for public inspection, and on Wednesday, Sept. 18, for the admission of patients. It is the gift of the late Mr. Frederick P. Glover, of that town, who died in October, 1901. It contains an operating room, sterilizing plant, and accommodation for ten patients.

NEW YORK.

Pure Food League.—On August 9 a meeting, at which Governor Wilson of New Jersey was present, was held at the Colony Club, for the purpose of forming an organization for the promotion of health preservation, in the interest of pure food and the consequent maintenance and improvement of the public health. Dr. Harvey W. Wiley was elected president, Prof. Irving Fisher of New Haven, vice-president, and Mrs. Borden Harriman, president of the Colony Club, secretary. Among the members of the executive committee are Dr. J. N. MacCormack of Kentucky, representing the American Medical Association, Major W. O. Owen of Washington, D. C., Drs. E. R. L. Gould and Thomas Darlington of New York, Dr. Richard C. Newton of New Jersey, and Dr. J. N. Hurty of Indiana. The organization is to be known as the Pure Food League.

Appointments at Rockefeller Institute.—The board of scientific directors of the Rockefeller Institute for Medical Research has announced the following appointments: Michael Heidelberger, fellow in chemistry; L. B. Lange, fellow in pathology; Florentine Medigreccanu, assistant physician. Dr. Simon Flexner, director of the laboratories, has been appointed Huxley lecturer for the current year. The Huxley lecture will be given before the Charing Cross Medical School, London, on October 31. Dr. Frederick J. Birchard, formerly assistant in chemistry, has been appointed a research chemist in the Dairy Division of the Bureau of Animal Industry, Washington, D. C.

International Congress of Applied Chemistry.—On the evening of September 12, the day before the adjournment of that body, a dinner for the Eighth International Congress of Applied Chemistry was given at the Waldorf-Astoria, which was attended by more than one thousand members and others. Dr. William N. Nichols, president of the congress, was toastmaster and addresses were made by Mayor Gaynor, Sir William Ramsay, and over twenty of the delegates, representing different countries. During the congress some seven hundred papers were read in the different sections, and a number of these were of direct interest to the medical profession. On September 12 there was a discussion on the best means for the prevention of lead poisoning in the section on Hygiene, and certain legislation with this end in view was recommended. Among the papers was one by Dr. W. Gilman Thompson of Cornell University Medical College, who presented a record of 300 cases of such poisoning seen by him or his colleagues in the wards of the Bellevue and Presbyterian Hospitals and in the out-patient clinics. On the last day of the congress, in the section on Biochemistry and Pharmacology, L. F. Foster and P. B. Hawk presented a paper in which they described a series of nutritional experiments made for testing the value of extreme mastication, so highly lauded by Fletcher. While these were rather limited as to time and number, so that positive conclusions could not be arrived at, their tests, as far as they went, failed to indicate the advantages of this procedure.

In the section on Photochemistry P. C. Freer of the Bureau of Science at Manila, read a paper prepared by himself and H. D. Gibbs (who died in April last), which gave the results of five years' study of the effects of sunlight on animals and man in the Philippines.

MORTALITY STATISTICS.—The weekly reports of the Health Department show that during the month of August the mortality in the city represented an annual death-rate of 13.25, as against 13.94 in July and 14 in August, 1911. A death-rate below 14 in July and August has never before been recorded in New York. This year the climax in the mortality from summer diarrhea was reached in the first week in August, when there were 241 deaths from diarrheal diseases in children under five years of age. Since then there has been a gradual, but not very marked, decline in this mortality; the deaths in the week ending September 7 amounting to 171. This, however, is a great improvement over former years, and no longer ago than 1910 as many as 437 such deaths were reported in one week during the summer. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from measles decreased from 11.25 in July to 5.25 in August; the weekly average from scarlet fever, from 7 to 4.75; from diphtheria and croup, from 15 to 11.5; from bronchopneumonia, from 56 to 50.5; from tuberculous meningitis, from 14 to 11.25; from apoplexy and softening of the brain, from 17 to 16.25; from organic heart diseases, from 140.5 to 132; from appendicits and typhlitis, from 17 to 13.75; from hernia and intestinal obstruction, from 12 to 10.25; and from Bright's disease and acute nephritis, from 103.5 to 93.5. Among the diseases in which there was an augmented mortality were the following: The weekly average of deaths from typhoid fever increased from 10.25 to 15.75; from whooping-cough, from 7.75 to 11; from pulmonary tuberculosis, from 145 to 149; from diarrheal diseases under five years of age, from 192.75 to 210; from diarrheals under one year, from 159.25 to 168; from cancer, from 75 to 78.75; from cirrhosis of the liver, from 15.75 to 20.75; and from puerperal diseases, including septicemia, from 10 to 15.

CONFERENCE OF SANITARY OFFICERS.—It is announced that the annual Conference of Sanitary Officers of the State of New York will be held this year at Syracuse, on December 4, 5 and 6.

ELIMINATION OF INDEPENDENCE DAY TETANUS.—In the August number of its *Monthly Bulletin* the State Department of Health reports that while, as usual, there were several deaths from tetanus in the State during the month of July, thanks to the general observance of a sane Fourth, there were no fatalities due to tetanus following injuries received on that day.

ARRIVAL OF GERMAN PHYSICIANS.—On September 17 some two hundred foreign physicians, mostly German, who are delegates to the International Congress of Hygiene and Demography at Washington, arrived by the steamship "Cincinnati." Many of them are men of worldwide reputation, such as His of Berlin and Loeffler of Greifswald, and for three days they were entertained in New York under the auspices of a committee of which Dr. A. Jacobi was chairman. On the 18th, Bellevue Hospital and other municipal hospital and public institutions were visited, and in the evening a dinner was given them at the Liederkranz club-house, at which Dr. W. Freudenthal acted as toastmaster and addresses were made by Mayor Gaynor, Dr. John A. Wyeth, lately president of the New York Academy of Medicine, Dr. Carl Pfister, president of the German Medical Society of New York, and, on behalf of the visitors, Professor His. On the last day of their stay the Rockefeller Institute, the Post-graduate, Polyclinic and Lying-in Hospitals, Columbia University, and various other institutions were visited.

NEW YORK AT THE HYGIENE CONGRESS.—In commenting on the proposed work of the Congress the last *Monthly Bulletin* of the City Health Department remarks: "The effect of the Congress should also be very beneficial in promoting the tendency towards uniform food legislation, and, above all, toward that study and knowledge of the existing state of public hygiene throughout the United States which is the necessary preparation for better and more uniform organization of sanitary functions of the national, state and municipal governments. In the field of vital statistics, especially, is there need of co-ordinated activity and uniform methods throughout the United States. In this respect our country has lagged far behind Europe;

but the strongly accelerating public health movement in America is now demanding a scientific statistical basis. The effect of the Congress cannot but be wholesome in the direction of overcoming the chief obstacles to statistical progress, which are the lack of an effective demand in many states for proper and complete recording of deaths and the lack of officials adequately trained to use and interpret the figures so that vital statistics and, more broadly, health statistics or demography shall serve as the compass to guide unerringly the ship of public health administration." Among the twelve groups into which the general exhibit of the Congress is divided the department is represented under Group 1, vital statistics and demography; Group 2, growth and nutrition; food; Group 3, the hygiene of infancy and childhood (including prevention of infant mortality and school hygiene); Group 7, communicable disease; Group 9, care of the sick; life saving; and Group 12, sex hygiene. Under Group 3 the department shows the work of the Division of Child Hygiene, including the operation of 55 municipal infants' milk stations. The results from these have been so successful that it is believed that the methods of organization, as shown by the charts and tables, will be studied with much interest. Under Group 9 are exhibited numerous models illustrating methods of caring for contagious diseases, and under Group 12 is described the department's most recent undertaking, the supervision and control of venereal diseases. In connection with its exhibit the department has prepared an illustrated booklet reproducing the plans of its various hospital buildings and describing their important features, and also three special bulletins. The first of these describes broadly the sanitary activities of New York City, including not only its own work, but allied functions coming under the jurisdiction of other municipal and state authorities; the second describes the work of the Division of Child Hygiene; and the third describes the development of milk inspection under the control of the department and explains the methods now in use. Of the sections of the Congress, Dr. H. M. Biggs, General Medical Officer of the City Health Department, is president of that on Control of Infectious Diseases, and Dr. A. Jacobi, of its Medical Advisory Board, is president of that on Hygiene of Infancy and Childhood and School Hygiene; while Prof. Walter F. Wilcox of Cornell University, consulting statistician to the State Health Department, is president of the section on Demography.

Work of Milk Stations.—The twenty-first year of Nathan Straus's milk depots in New York has now been completed. During the past year 21,943,684 bottles for infants, in addition to 1,326,100 glasses of milk, were dispensed at the seventeen stations, and it is stated that of 2,200 babies supplied with milk pasteurized and modified at the Straus laboratories, only one died and that this death was due to pneumonia. As heretofore, eight of the stations will be kept open during the entire year.

New Italian Hospital.—The new Italian Hospital, on the East River at the foot of East 83rd street, was formally opened on September 20, and among those who spoke on this occasion were Signor Forni, the Consul General of Italy to New York; Signor Pagliana, representative of the Italian Government at the International Congress of Hygiene and Demography at Washington; Dr. Briganti, chairman of the medical board of the hospital, and Dr. Charles V. Paterno. This hospital has been erected partly at the expense of the Italian Government, which, through the efforts of the Italian Benevolent Society, was induced to give $60,000 on condition that an equal amount were raised in New York. The building, which is five stories high, has a frontage on the river of one city block and is 100 feet deep, and its present capacity is 100 beds.

Middleton-Goldsmith Lectures.—The Middleton Goldsmith Lectures of the New York Pathological Society will be delivered at the Academy of Medicine, 17 West 43d Street, on Wednesday and Friday evenings, Oct. 2 and 4, 1912, at 8.30, by Dr. E. F. Bashford, Director of the Imperial Cancer Research Fund of London, England, the subject being, "A Review of Recent Cancer Research." All those interested are cordially invited to be present.

The Rockefeller Institute.—The Rockefeller Institute for Medical Research, in New York, has recently published a pamphlet descriptive of its history, organization, and equipment. Particular account is given of the departments of the Institute, its laboratories, hospital, and staff, and of the methods pursued in its research work. Ths pamphlet is well illustrated with complete plans and with four full-page plates.

Current Literature.

MEDICAL RECORD.

SEPTEMBER 14, 1912.

1. PETERS, L. S. *Sanatorium Treatment of Tuberculosis.*
2. CRAIG, H. A. *Observations from 300 Cases Treated by Autogenous Bacterial Vaccines.*
3. BOORSTEIN, S. W. *Institutional Treatment of Arthritis Deformans.*
4. WEIDLER, W. B. *Keratitis Neuroparalytica After Removal of the Gasserian Ganglion.*
5. HAMILTON, W. D. *The Diagnosis of Gallstones.*
6. NAMMACK, C. E. *Abortion—Its Social and Ethical Aspects.*

NEW YORK MEDICAL JOURNAL.

SEPTEMBER 14, 1912.

1. WRIGHT, J. *The Inheritance of Acquired Characters.*
2. LESZYNSKY, W. M. *Polyneuritis with Radicular and Spinal Cord Involvement.*
3. *NEUSTAEDTER, M. *Pathological Changes of the Pharyngeal Mucosa an Early Symptom Pathognomonic of Poliomyelitis.*
4. *SPANGLER, R. H. *The Crotalin Treatment of Epilepsy.*
5. KENNEDY, J. W. *Drainage of Acute Infectious Lesions of the Abdominal Cavity.*
6. MACY, M. S. *The Community and Health.*
7. WILLIAMS, A. W. *The Medical Corps and Medical Reserve Corps of the United States Army.*
8. MCGREGOR, G. W. *Some Phenomena of the Modern Practice of Medicine.*
9. NODINE, A. M. *Rheumatic Fever.*

3. Neustaedter has found nasopharyngeal symptoms contant in 52 cases of poliomyelitis and he describes a condition of the pharyngeal mucosa which he considers pathognomonic of this disease. The mucous membrane is anemic, glistening and edematous with a serous, frothy transudate, quite analogous to the edematous swelling of the cord which is seen at autopsy.

4. Spangler reports six cases of epilepsy treated with rattlesnake venom (crotalin) which he has been able to follow for three years. His experience now embraces 109 cases and he considers the venom treatment indicated in many of the "essential" cases. Not only are the number and virulence of fits reduced but the excitability of the nervous system is modified and the patient's general health improved. The quality of the blood and possibly its chemical composition seem to be affected. There is no danger in the use of crotalin if it is given under aseptic precautions and its effect watched carefully.

[L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

SEPTEMBER 7, 1912.

1. NARVEL, P. *Scientific Employment of Physical Therapeutics.*
2. FLINT, J. M. *Physiologic Basis of Thoracic Surgery.*
3. SKORG, A. L. *Acute Poliomyelitis, Transverse Myelitis Type.*
4. WILLSON, R. N. *The Spinal Cord in Pernicious Anemia with the Report of an Interesting Case of Family Involvement.*
5. MILLER, H. A. *Difficult and Dangerous Labors. Selecting the Method of Delivery.*
6. STILLNAZEN, C. A. *Cesarean Section.*
7. HAMILTON, A. *Industrial Lead Poisoning in the Light of Recent Studies.*
8. HARBITZ, F. *Epidemic Poliomyelitis in Norway. Its Etiology and the Possibilities of Its Prevention.*
9. NEUSTAEDTER, M. *A Contribution to the Etiology of Poliomyelitis.*
10. GEIER, O. P. *Medical Sociology in Civic Betterment.*
11. FISHBEIN, M. *A Method of Selection of Donor for Blood Transfusion.*
12. HORN, H. *The Palliative Treatment of Terminal Laryngeal Tuberculosis.*
13. ROSENOW, E. E. *Immunization in Pneumococcus Infection.*
14. FORCE, V. N. *A Home-made Antiseptic Thermometer-Case.*

7. Hamilton shows that industrial lead poisoning is much more prevalent in America than in Europe and constitutes a serious problem. The toxicity should be based on the solubility of the salt in gastric juice and not in water. A salt is poisonous in direct proportion to its dustiness. English authorities concentrate their efforts on the dilution of dust with amazing practical success. The suboxid is probably the most poisonous and the oxids more so than white lead. There is only one harmless lead salt—the sulphid. Individual idiosyncrasy plays so important a rôle that it is impossible to say how large a daily dose would cause symptoms of poisoning. Family tendencies are strong. A son of a once leaded father should never go into the lead business. Alcohol is generally recognized as the greatest predisposing factor in causing lead-poisoning.

[E. H. R.]

SEPTEMBER, 14, 1912.

1. SOLLMANN, T. *The Current Problems of Pharmacology and Therapeutics.*
2. WILBERT, M. I. *Present Status of the Laws Relating to Patents and Trade Marks.*
3. STEWART, F. E. *The Relation of the Patent and Trade Mark Laws to Materia Medica Nomenclature.*
4. WALLACE, G. B. *The Influence of Pathologic Conditions on the Action of Drugs.*
5. FANTERS, B. *Candy Medication.*
6. *SKINNER, C. E. *Practical Application of the Roentgen Ray to the Management of Malignant Growths.*
7. *HAMBERGER, W. W. *Comparative Studies in Cancer and Normal Tissue Ferments.*
8. *CHALFANT, S. A. *Acetonuria. Its Relation to Post-operative Vomiting in 700 Cases of Ether Anesthesia.*
9. *LADINSKI, L. J. *Treatment of Tubal Pregnancy with Special Reference to Immediate Operation for Rupture. Based on a Study of Two Hundred Operations.*
10. *DAVIS, E. P. *Drainage of the Kidney by Incision for Bacillus Coli Communis Infection in Pregnant and Parturient Patients, With Report of Cases.*
11. MILLS, G. W. T. *The Occurrence of General Paralysis in Women.*
12. GRIFFIN, H. Z. *The Diagnosis of Diverticulitis of the Large Bowel.*
13. LAPHAM, M. E. *The Treatment of Pulmonary Tuberculosis by Compression of the Lung.*
14. LEUTSCHER, J. A. *Bacteriology of Epidemic Sore Throat.*
15. *MINGERS, E. *Rheumatism.*
16. MURPHY, J. B. *Transplantability of Malignant Tumors to the Embryo of a Foreign Species.*
17. POWELL, S. T. *The Water Purification Works of the Baltimore County Water and Electric Company.*
18. RIGHTOR, H. H. *Localized Gangrene Following the Use of Quinine and Urea Hydrochloride.*
19. BRANDT, F. H. *Closed Empyema of the Ethmoid and Frontal Sinuses Producing Marked Exophthalmos.*
20. DOOLITTLE, W. F. *Post-operative Hiccup.*
21. MOTLEY, C. A. *A Case of Asymmetrical Bilateral Herpes Zoster.*

6. Skinner believes that the x-ray has demonstrated that it is capable of exercising a powerful curative influence over many cases of malignant disease, hence its routine addition to extirpative measures will increase the number of curable cancer cases. It is impossible to tell beforehand which cases will need roentgenization after operation, and which will not, or which will respond happily and which will not; hence the only way to be sure of treating all cases that will need it and all that will respond is to treat all cases post-operatively. There is reason to believe that many post-operative recurrences are more resistant to the x-ray than the original growth also it is easier for the x-ray to influence microscopic foci of malignancy than those of large size; hence roentgenization should be commenced as soon after extirpation as is consistent with the safety of the wound and before recurrence has occurred.

7. Hamberger points out that the ferments of cancer tissue on which the glycyltryptophan and less well-known biologic tests are based, belong to the group of ereptases, and those of cancer tissue cannot be distinguished in their ability to split peptone, and form tryptophan from the ereptases found in normal tissue cells, blood serum, saliva, mother's milk, pleuritic and ascitic fluids and leukocytes. It appears likely that these several ereptases are identical and that those of blood serum, leukocytes, saliva and other body fluids are derived from fluid tissue cells. Compared quantitatively, most cancer tissues contain less ereptases than normal tissues.

8. Chalfant notes that the liability to vomiting is increased when acetone is found in the urine after anesthesia. Protracted post-anesthetic vomiting is best treated by sodium bi-carbonate, by bowel and by lavage. These patients need careful watching on account of the liability of acid intoxication. Acetonuria is due to faulty metabolism and increased by carbohydrate starvation. Acetonuria has no relation to the length of anesthesia and the duration of anesthesia has only a slight influence on vomiting.

9. Ladinski comes out strongly against any delay before operation in ruptured tubal pregnancy and quotes the striking results in 200 cases. In all immediate operations, 150 cases, there were only three deaths, while in the two deferred cases there were 2 deaths or 100 per cent. mortality. He firmly believes that his figures are convincing enough to justify the assertion that all cases should be submitted to immediate operation.

10. Davis believes that pregnancy does not forbid surgical treatment by drainage of kidneys infected with bacillus coli communis. Nephrotomy is safest for mother and child.

15. Mingers believes that he is presenting two original ideas in regard to rheumatism when he states that he believes that in many cases of rheumatic fever the initial seat of the infection is in the intestinal tract from which absorption of bacteria and their toxins occurs. Chronic or recurring attacks are or may be due to the continuance of the bacteria of rheumatic fever in the intestinal tract in an attenuated condition and are aroused to activity by dietetic, hygienic environmental errors which cause a reduction in metabolic activity and natural resistance.

[E. H. R.]

DEUTSCHER MEDIZINISCHE WOCHENSCHRIFT. No. 28.

JULY 11, 1912.

1. *KOCHER. *Goitre and Its Treatment.* (Begun in No. 27.)
2. SCHWARTZ. *Roentgenoscopy of the Intestines with a Daily Bismuth Test Ration.*
3. POPPER AND FRANKL. *Action of the Opium Alkaloid on the Living Intestine Outside the Body.*
4. PETRUSCHKY. *Sterilization of Typhoid Carriers by Active Immunization.*
5. SACHS. *Intrapartum Infection.*
6. KRAEMER. *The Premonitory Symptoms of Thrombosis.*
7. SCHMITT. *Further Experiences with Salvarsan.*
8. NAKANO. *Cultivation of the Spirochaeta Pallida.*
9. VULPIUS. *Sanatorium Treatment of Surgical Tuberculosis.*
10. BLEGVAD. *Anesthesia of the Tympannic Membrane.*
11. FLEMMING. *Transient Loss of Consciousness in Aviation.*

1. In this and the preceding number is printed a post-graduate lecture on goitre by Kocher, the recognized authority on this disease. The author gives a summary of the present day knowledge of the treatment of goitre. He emphasizes the importance of recognizing derangements of thyroid function in their early stages, and dwells with considerable force upon two classes of cases often treated wrongly because of failure to recognize the condition.

The first group is made up of patients showing the symptoms of early deficiency of thyroid secretion. The pallor and puffy appearance of the patient's face, constant lassitude, chilly sensations and small pulse often give rise to a diagnosis of anemia. Treatment with tonics and other stimulating measures is fruitless until the necessary thyroid substance is furnished the individual.

Contrasted with this group is that comprising patients suffering with incipient exophthalmic goitre, who with their excitability, palpitations, insomnia and lost poise are classed as neurasthenics. Treatment with sedatives and heart tonics does them no good as long as the system is flooded with the products of perverted thyroid activity.

Kocher has completed his five thousandth operation for goitre, and on the basis of this experience makes some interesting observations on the differential diagnoses of enlarged thyroids. Rapid enlargement, accompanied by toughening of the tumor he regards as strongly suggestive of malignant disease. If to them is added local tenderness, recurrent or sympathetic paralysis and pain in a patient in the "cancer age" Kocher regards the diagnosis as practically certain.

In cases showing any of these symptoms he advises early operations, and condemns iodin treatment on the ground that it not only consumes valuable time, but may do actual harm and cause the symptoms of exophthalmic goitre to appear. He concludes that operation may be safely advised in all cases of goitre showing rapid enlargement, stenosis, or cardiac symptoms. He believes operation to be even more urgent if the blood picture and clinical findings show exaggerated function of the thyroid.

Iodin treatment and thyroid extract should be used only in those cases which show no signs of stenosis, little or no tendency toward increase in size of the goitre: and those which show signs of deficient thyroid secretion. In such cases, medical treatment may attain results as brilliant as those accomplished by surgery in the "thyro-toxic" cases.

[C. H. L., JR.]

No. 29, JULY 18, 1912.

1. PETERS. *Diagnosis and Treatment of Sympathetic Ophthalmia.*
2. SULTAN. *Metastatic Extradural Suppuration.*
3. HAHN. *Immunity to Diphtheria.*
4. NOEHTE. *The Cause and Treatment of Writer's Cramp.*
5. STEINER. *Iodocitin and Arteriosclerosis.*
6. v. SOHLERN, JR. *Oppenheim's "State of Nourishment Index."*
7. HIRSCHBERG. *Stupor and Amnesia in Exanthematous Typhus.*
8. NIELSON-GEYER. *Sources of Error in Serodiagnosis of Syphilis.*
9. KIRCHBERG. *The Treatment of Scars.*

[C. H. L., JR.]

WIENER KLINISCHE WOCHENSCHRIFT. No. 36.

SEPTEMBER 5, 1912.

1. *BÜDINGER, K. *Phimosis Operation.*
2. *PRIBRAM, E. E. *Cholecystitis and Carriers and the Present Status of Therapy.*
3. *WINKLER, J. *Sacral Dermoid.*
4. v. RAUCHENBICHLER, R. *Case Contribution to the Question of Quadriceps Tendon Rupture.*
5. *BLUM, R. *The Question of Landry's Paralysis.*
6. *HASKOVEC, L. *Hygienic School Inspection.*

1. Büdinger describes another method of operation for phimosis, the technic of which does not seem to offer any advantages over the various plastic procedures already in use.

2. Pribram believes the gall-bladder usually the reservoir of infection in typhoid carriers. He therefore advocates state supervision of all typhoid convalescents until they are bacillus free, with drainage of the gall-bladder in refractory cases. By this method he would hope to check the occurrence of carrier endemics.

3. Under the term "sacral dermoid," Winkler reports a series of thirty cases apparently of pilo-nidal sinus.

5. Blum identifies Landry's paralysis with poliomyelitis acutissima, and reports two adult cases.

6. Haskovic believes that school physicians should be neuropathologists and presents an elaborate scheme of neuro-psychologic examination for school children.

[R. M. G.]

ANNALES DE L'INSTITUT PASTEUR.

JULY, 1912.

1. *CALMETTE, A. *Inquiry on the Epidemiology of Tuberculosis in the French Colonies.*
2. BERTRAND, G., AND JAVILLIER, M. *Combined Action of Manganese and of Zinc on the Development and the Mineral Composition of Aspergillus Niger.*
3. TISSIER, H. *Comparative Action of the Microbes of Putrefaction on the Albuminous Principles.*
4. *TRUCHE, C., AND COTONI, L. *Studies on the Pneumococcus. V. Virulence of the Pneumococci, Human and Animal, for the Rabbit and the Guinea-pig.*
5. *REPACI, G. *Contribution to the Knowledge of the Spiral Microbes of the Mouth.*
6. *GREZES, G. *Researches on the Sucrose of Aspergillus Niger.*
7. ACKER, M. *Statistics of the Antirabic Vaccinations at the Pasteur Institute of Samara for the Years 1886–1910.*

1. As a result of his inquiry, Calmette concludes that it is no longer possible to maintain the hypothesis, formulated by von Behring in 1903, that pulmonary tuberculosis of the adult is only the late manifestation of an infection, most often of bovine origin, contracted in the first months of life following the ingestion of milk of a bacilliferous cow.

4. In this fifth of their series of papers, the authors conclude that human pneumococci are rarely virulent for rabbits; that rabbit pneumococci are usually virulent for rabbits; that the virulence of pneumococci varies very rapidly; that pneumococci very virulent for the rabbit are always so for the mouse, but not conversely; that human pneumococci are exceptionally virulent for the guinea-pig; that guinea-pig pneumococci are usually non-virulent for the guinea-pig; and that pneumococci active for the guinea-pig are always very active for the mouse and the rabbit. The converse is not true.

5. Repaci reports on the laboratory culture, isolation and study of some of the non-pathogenic types of mouth spirochetae.

6. In these researches, Grezes makes a contribution to the study of the influence of carbonized nutrition on the secretion of the diastases.

[R. M. G.]

BULLETTINO DELLE SCIENZE MEDICHE.

JULY, 1912.

1. *SECCHI, R. *The Clinical Value of Birefringent Lipoids in the Urine.*
2. *SANTINI, C. *Free Tracheo-Tracheal Grafts.*

1. Secchi concludes, from a clinical study of two nephritics, that the birefringent substance in the urine is found very often in the chronic nephritides, especially in the grave forms and in those of parenchymatous nature; also in amyloid kidney. Very rarely it is found in a small quantity in the urine of old arteriosclerotics. It is not found in the acute nephritides, in the acute or chronic maladies of the lower urinary passages, or in orthostatic or toxic-infective albuminuria. It is an indication of a grave and persistent renal lesion.

2. From a series of 23 experiments on dogs, Santini concludes that total tracheal grafts may be made with fresh homoplastic or heteroplastic material. There is a progressive tendency to stenosis. Partial homo- and heteroplastic grafts have given optimal results, anatomic and functional.

[R. M. G.]

Correspondence.

SUPERSTITIONS AND MISTAKES IN INFANT FEEDING.

SEPTEMBER 14, 1912.

Mr Editor: The following history of a baby, five months old, taken by my house officer, Dr. J. L. Gamble, at its admission to the Children's Hospital, seems to me worthy of publication, in that it combines so many of the superstitions regarding infants and of the possible mistakes in feeding them.

James L. was the sixth child of healthy parents. Three of them were dead. In each instance the breast was given up when the baby was two or three weeks old because the baby had had a single attack of vomiting. The babies were then fed on milk and water and paregoric.

He was born at full term and weighed 12 pounds. His mother nursed him for a month and he gained steadily in weight. He was then weaned because he refused to take the breast one morning. The breast milk was at this time, however, so abundant that it had to be pumped in order to relieve the mother. He was then given one part of cows' milk and three parts of water. This mixture was soon given up because he did not gain. He was then given Imperial Granum and water for a month, after which he had condensed milk, in the proportion of one teaspoonful to eight ounces of water, for a month (this mixture contains approximately 0.16 per cent. of fat, 1 per cent. of sugar, 0.13 per cent. of proteids). He was then given a preparation of Nestle's Food and water, which he took up to the week before he was brought to the hospital. During this week he had been given only rice water. He had lost weight steadily since being weaned and had been obstinately constipated, in spite of Castoria given every night. He had cried nearly all the time and had seemed to have the colic. He kept his legs twisted up over the abdomen and his fist in his mouth. Paregoric, given every night for the past three months, had failed to provide him with a single good night's sleep. Mrs. Winslow's Soothing Syrup and Children's Comfort had been tried repeatedly, but had failed to win testimonials. He had vomited three or four times a day, just after his feedings. The plan of feeding had been, however, to give him a half-pint bottle, the contents of which he would take eagerly until he began to belch and regurgitate. During the last week on rice water he had hardly slept at all, had cried so urgently and had seemed so unhappy that his mother wondered if he was not teething.

Yours,

JOHN LOVETT MORSE, M.D.

A PHENOMENON OF ARTIFICIAL RESPIRATION.

Mr. Editor:

Last week, with the assistance of a colleague and a house-officer, I had occasion to do artificial respiration, by the method of mouth-to-mouth insufflation, almost continuously for three hours, in the unavailing attempt to resuscitate a badly asphyxiated newborn baby. Until nearly the end of this time the baby's heart maintained its action well, at a rate of from 60 to 100 beats to the minute, and her color, at first very cyanotic, became fairly pink and then gradually pale. She gasped on several occasions, and showed rhythmic reflex twitchings about the mouth. During nearly the entire time she was kept immersed to the neck in warm water. At the end of two hours and a half, I suddenly observed a stream of air-bubbles rising through the water. On investigation I found that these came from the baby's anus, and synchronized with each insufflation. There seemed no doubt that this air was traversing her entire alimentary tract from the mouth. The lungs, meantime, were expanding well with each insufflation, so that there could be no question that at least some of the air blown in entered the glottis. The abdomen was not notably distended, and massage of it failed to express air through the anus. Apparently I had gradually forced air through the alimentary tract, until, with the antemortem relaxation of the sphincter ani, the increase of pressure with each insufflation was sufficient to expel some from the rectum. The stream of air-bubbles continued to appear with each insufflation as long as the procedure was continued, and could be reproduced after the baby's death, which supervened with the ultimate decline and cessation of the heart-beat.

In the belief that it may interest your readers, I am led to report this mechanical phenomenon which I, for one, would not have believed possible until I had observed it.

Very truly yours,

ROBERT M. GREEN, M.D.

78 Marlborough St., Boston.
September 22, 1912.

CLINICAL COMPLICATIONS IN THE FAR NORTH.

NORRIS ARM, NEWFOUNDLAND.

Mr. Editor: The following case may be of interest to you and to readers of the JOURNAL. The woman came to me day before yesterday. I shall have to give it in dialogue.

Mrs. Budgell, Fortune Harbor.

"What is your age?"

"I don't rightly know, Doctor, but I had the change of life two winters ago."

"Well, shall I call it between 40 and 50?"

"That's handy about it, Doctor."

"How old were you when your father died?"

"Han hinfant hin harms, Doctor."

"What did he die of?"

"Hold hage, Doctor."

"Have you any brothers or sisters?"

"Yes, Doctor, one sister living and one brother dead."

"When did the brother die?"

"Nine year ago."

"How old was he then?"

"Twenty-four."

"Was he older or younger than you?"

"He was my twin, Doctor."

"When were you married?"

"I never was rightly married, Doctor. You see I was married before I hought to 'ave been and my parents wat took me when mine died just joined hus when I was honly fifteen.

"Have you any children?"

"Two, livin'."

"How old is the oldest?"

"She's my daughter—she's thirty year old."

Having finely emerged from this maze in which it appeared that the patient was between 40 and 50 years old, had a twin brother of thirty-three and a daughter of thirty I struck out boldly into the present illness, with this result.

"Hi 'ave ha haching under my shoulder blade that runs along my ribs like a cold drap, hunder my harm till hit lodges hin my stomick, (pointing to her breast-bone) and kinder drops off scalding and burning me and wen hi doos hanything hit guggles 'nd guggles 'nd guggles somethin' shockin'."

Further on,

"Are your bowels regular?"

"No they haint', Doctor, I can't get 'em t' move. I took three of Dr. Pierce's pills one night hand three the next hand four the next, hand they were very quiet. I might just as well 'a' taken so many shoe buttons, and wen I doos ease myself hit's no better nor goat's buttons."

Here I retired incapable of further cross-questioning.

Very truly yours,

H. P. GREELEY, M.D.

Aug. 25, 1912.

Miscellany.

OPEN-AIR SCHOOLS FOR THE TUBERCULOUS.

A STATEMENT issued on Sept. 19 by the National Association for the Study and Prevention of Tuberculosis states that there are at present in Massachusetts 86 open-air schools and classes for the tuberculous, of which 80 are in Boston.

"New York comes next with 29, and Ohio is third with 21. Open-air schools have now been established in nearly fifty cities in nineteen different states.

"With the opening of the fall term, more than 200 open-air schools and fresh-air classes for tuberculous and anemic children, and also for all children in certain rooms and grades, will be in operation in various parts of the United States. All these schools have been established since January, 1907, when the first institution of this character was opened in Providence, R. I. On Jan. 1, 1910, there were only thirteen open-air schools in this country, and a year later the number had increased only to twenty-nine. Thus the real growth in this movement has been within the last two years.

"Based on figures of population and mortality furnished by the United States Bureau of the Census, it is estimated that not less than 100,000 children now in school in the United States will die of tuberculosis before they are eighteen years of age, or that about 7000 of these children die annually from that disease. Estimating that on an average each child who dies from tuberculosis has had six years of school, the aggregate loss to this country in wasted education each year amounts to more than $1,000,000. This loss and much of the incident suffering could be materially decreased if open-air schools of classes for these children and those who are sickly and anemic were provided. The National Association estimates that there should be one such school for every 25,000 population, especially in cities."

IMAGINATION IN SCIENCE.

A RECENT issue (Vol. vii, No. 1) of *The University of Colorado Medical Bulletin* contains an excellent article by Dr. Charles S. Elder on "The Scientific Method of William Harvey," in which he analyzes the steps of investigation by which the latter unravelled the mystery of the circulation of the blood. Dr. Elder points out that mere passive observation is in itself fruitless and insufficient to achieve results unless made dynamic by active, constructive interpretation. It is not enough to see and measure and record; the true discoverer must also correlate and think. There is no discovery in science, or creation in art, without imagination. Without imagination the investigator, like Kipling's "Tramp Royal, will merely

"Go observing matters till he dies,"

a procedure perhaps entertaining to the individual, but hardly productive of progress or benefit to the world.

APPOINTMENTS.

DR. DON R. JOSEPH, formerly associate in physiology and pharmacology at the Rockefeller Institute for Medical Research, has been appointed associate professor of physiology at Bryn Mawr College.

DR. WILFRID SADLER, of the Midland Institute, Kingston, Derbyshire, England, has been appointed assistant in bacteriology at Macdonald College, Sainte Anne de Bellevue, Quebec, Canada.

DR. MARY CATHERINE COUCH, of Somerville, Mass., has been appointed resident physician at the State Hospital, Northampton, Mass.

DR. CHARLES F. STACK, of Hyde Park, has been appointed medical inspector of schools for that district of Boston.

RECENT DEATHS.

DR. GEORGE H. COCKS, a well-known New York ophthalmologist, died at Pleasantville, N. Y., recently at the age of fifty-one years. He was graduated from Bellevue Hospital Medical College in 1882, and at the time of his death was assistant surgeon to the New York Eye and Ear Infirmary and ophthalmic surgeon to the Institution of Mercy for Destitute Women and Girls.

DR. WILLIAM T. KLEIN, of the Borough of the Bronx, New York City, died at his summer home at Sea Cliff, Long Island, on September 8, at the age of thirty-seven years. He was graduated from the College of Physicians and Surgeons, New York, in 1895.

DR. T. EARLE BUDD, one of the most prominent veterinary surgeons of the State of New Jersey, died at his home in Orange on September 13 from septicemia resulting from a cut on the finger received while making an autopsy on a cow which had died from an infectious disease. Dr. Budd was a member of the State Live Stock Commission and the State Tuberculosis Commission and veterinarian for the Essex County Park Commission. He was fifty-two years old, and had practised in Orange since 1898.

DR. JOHANNES HEININGER, who died last week at Brooklyn, N. Y., was born in Switzerland in 1843. Coming to the United States as a young man, he studied medicine at the College of Physicians and Surgeons, New York. He practised his profession chiefly in Missouri.

DR. H. F. WIEBE, of Charlottenburg, a prominent German scientist and official representative of the Kaiser at the Eighth International Congress of Applied Chemistry, died suddenly from cardiac disease on September 17. He had remained in New York after the close of the Congress and was stricken while dining at the Hotel Netherland, where he was stopping.

DR. JOHN LAWRENCE HUGHES, health officer of Mt. Vernon, Westchester County, N. Y., died on September 20 from injuries received in an automobile accident, which occurred near the neighboring city of New Rochelle. His skull was crushed and both his legs broken in several places, and his death took place on the operating table at the New Rochelle Hospital. Dr. Hughes was graduated from the College of Physicians and Surgeons in 1899 and afterwards served as interne at the City Hospital, Blackwell's Island, New York.

DR. HAROLD T. PRENTISS, who died last week at Holyoke, Mass., was a graduate of the University of Pennsylvania, and received the degree of M.D. from the Baltimore Medical College in 1893.

DR. WILLIAM JOSIAH QUIMBY, who died on Sept. 7 in Lynn, Mass., was born at Parsonfield, Me., in 1833. He studied medicine at the Harvard Medical School and in New York. During the Civil War he served as surgeon of several Ohio and Indiana regiments. Subsequently he settled at Memphis, Tenn., but later moved to Chicago, and in 1881 to Omaha, Neb. There he practised his profession until 1893, when he removed to Cheyenne, Wyo. In 1908 he came to New York, where he continued in practise until his retirement in December, 1911. He is survived by his widow, by 7 children, and 14 grandchildren.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, SEPT. 14, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	9	1
Chicago	588	208	Waltham	7	0
Philadelphia	—	—	Brookline	2	—
St. Louis	—	—	Chicopee	6	4
Baltimore	—	—	Gloucester	9	1
Cleveland	—	—	Medford	3	—
Buffalo	—	—	North Adams	10	5
Pittsburgh	—	—	Northampton	11	1
Cincinnati	—	—	Beverly	1	—
Milwaukee	—	—	Revere	5	1
Washington	—	—	Leominster	5	1
Providence	—	—	Attleboro	0	—
Boston	263	65	Westfield	3	0
Worcester	—	—	Peabody	—	—
Fall River	39	19	Melrose	—	—
Lowell	44	20	Woburn	7	1
Cambridge	23	8	Newburyport	2	1
New Bedford	26	10	Gardner	—	—
Lynn	16	5	Marlboro	4	1
Springfield	31	9	Clinton	4	2
Lawrence	34	14	Milford	—	—
Somerville	18	3	Adams	2	0
Holyoke	14	7	Framingham	0	—
Brockton	9	2	Weymouth	—	—
Malden	—	—	Watertown	—	—
Haverhill	8	—	Southbridge	3	2
Salem	—	—	Plymouth	—	—
Newton	7	3	Webster	2	2
Fitchburg	9	6	Methuen	—	—
Taunton	12	6	Wakefield	0	—
Everett	9	5	Arlington	3	1
Quincy	—	—	Greenfield	3	4
Chelsea	18	4	Winthrop	3	—

Original Articles.

A FURTHER STUDY OF THE PROBLEM OF RACE BETTERMENT.*

BY J. EWING MEARS, M.D., PHILADELPHIA.

HONORED as I was, two years ago, by an invitation to present an address before this Society on the subject of the Problem of Race Betterment, I venture on this occasion to present the subject again, enriched as I feel it has been by the knowledge contributed through its study and discussion in the time which has elapsed—a period of time too brief, indeed, to do more than uncover, in superficial way, the surface of its momentous importance.

The contributions which I have made to the discussion of the subject, I have placed in book form[1] and have endeavored through the columns of current medical literature and medical and general libraries thus to invite the attention, not only of medical men, but of all who may be interested in the solution of the grave social problems which, in such appalling magnitude, confront the people of the world in this day.

The criticisms of the opinions expressed by me and, in this way, disseminated, whether favorable or otherwise, I have welcomed, since my object is and has been to seek the truth with open mind, and follow it fearlessly wheresoever it may lead.

The progress of the world has not been measured by easy steps over smooth pathways of endeavor, but over the rugged rocks of opposing forces and through the tangled jungles of ignorance and unyielding prejudice. The advancement of human welfare, in the past half century, has been sure, if indeed it has been slow—marked by the conditions of development and growth which have given character to the advancing states of civilization, to the progressive enlightenment which has accompanied intellectual culture and broadened investigation into the purposes of human existence and into the solidarity of the brotherhood of man. More than ever, in this day, must the burden of thy brother be taken up and his care and keep be borne, not only for his betterment, but for that of the world in which he lives and in the common protection of which he is a unit.

Organized society not only derives its properties of cohesion through the common consent of the individual elements which may compose its body politic, but through the binding force and power of the law, which cements it into a homogeneous mass and guides and directs it to the fulfillment of its destiny, and thus, in the logical sequence of my thesis, advocating the employment of a surgical procedure, ligature of the spermatic cord, in the treatment of the defective class as a radical remedial measure in accomplishing the solution of the problem of race betterment, I invoked primarily the potential influence of the law, claiming its interference as a protection to the State which gives it birth, and as well a benefaction to those who, either through the mysterious forces of hereditation, perverted conditions of embryonic life, grave pathological conditions resulting from dystocia, or the influence of toxins in early childhood, all conspiring to arrest complete cerebral development, are unable "to perform their duties as members of society in the position of life to which they were born"—the class being designated as the subjects of amentia. These constitute the class which, while bereft of mental potentiality, are still possessed with such physical development and power as to render them competent to perpetuate their kind, and through this power they become a grave menace to the well-being of the human race.

Such being the fact the argument which I have advanced is that the State, through legal enactments which shall in every respect safeguard the inalienable rights and privileges of the individual, shall give power to the authorities of the institutions of the State in which the defective subjects are confined as beneficiaries, to institute such surgical procedures as will inhibit procreation, and I have endeavored to show that this duty in like manner rests upon parents and guardians of minor defective subjects, whether under the care and protection of the home or segregated in institutions for the care and training of the defective subject.

While the duty rests upon the State to protect its citizens in the full enjoyment of life and liberty, it has an equal duty to perform in exercising restraint in all cases of those who owing to mental, moral or physical conditions endanger the well-being of the community. In the criminal class measures of restraint are punitive in character; in the subjects of mental or physical disorders measures of restraint are protective, and so far as possible remedial. The State, through its care and guardianship of its citizens, is concerned constantly in maintaining them in normal conditions of well-being, so that they may take up their obligations and duties in preserving its integrity, and not become burdens upon its resources.

Equally well is the State concerned in the return to their duties in the ranks of citizenship of those who for the conditions above stated may be temporarily removed. In doing this the great responsibility rests upon the State of permitting those only who are fit, to take their places in the ranks of citizenship, and perform the duties which belong to them, without danger to the well-being and welfare of those who compose the community.

And here, to my mind, we approach the consideration of the very essence of the whole subject, so far as relates to what is best to be done with the defective class, with which we are in this discussion more closely concerned. I think it may be safely stated that experience has

* Read before the Georgia Medical Society, March 26, 1912.

[1] The Problem of Race Betterment W. J. Dornan. Philadelphia, 1911.

shown, thus far, that there is a positive limit to the results to be obtained by training, attempts at education and discipline in these subjects. A very superficial study of the histological and pathological conditions which exist in the brains of the subjects of amentia explain the failures which have been experienced. The elaborate research work of Wilmarth, supplemented by that of Bolton, Barr, Hammerberg, Tredgold, Spiller and others, as collated by Dr. Mary McDowell Shick, Pennsylvania Training School for Feeble-Minded Children, Elwyn, Pa., who in her official position in the school has had an opportunity to study, in thorough manner, the subjects of amentia under discussion and who has contributed to medical literature the valuable results obtained by her investigations, have opened the door to storehouses of knowledge upon this subject, have broadened the fields of inquiry, fields which were unexplored for the want of intelligent methods of research in the not many years past. The laborious work of these investigators has shown departures from the normal structure in all parts of the brain, more especially, as would be expected, in those parts which concern intellection. Many of these are gross in character and can be recognized by the unaided eye, but it is left for the microscope to reveal the hidden causes in the condition of the nerve cells differing in marked manner as to number and other conditions from those found to exist in the normal brain.

The conditions which attract attention and which are discoverable by the unaided vision relate first to the size and weight of the brain. While it is an accepted fact that brain weight is not an index of intellectual power, it has been found in a number of aments that the weight, as an average, is much below the normal,—49½ ounces,—varying from ten to twenty ounces; in three cases noted it was above normal; in two of these examination showed that the increase in weight was due to a preponderance of connective tissue elements in the convolutions. Microcephalic subjects exhibit remarkably small brains, the lowest in weight as recorded not exceeding about six ounces. In a girl of this type, who lived to the age of twelve years, the brain weight was seven ounces; her intelligence, which was not much above that found in animals of a lower order, was limited to the recognition of her nurse and to the execution of a few simple commands; her physical being representing an inert mass of poorly nourished tissue.

A significant departure from the normal is noted in the proportion of size and weight of the cerebellum to the cerebrum—the former being large in proportion and sometimes uncovered by the occipital lobes of the cerebrum—the anterior lobes of the cerebrum, important centres of psychic power, are frequently relatively diminished. Asymetry or under-development is stated by Bolton to exist more frequently where the family history discloses a psychopathic taint, and becomes a form of heredity. Abnormalities relating to the arrangement of the convolutions, to the course and relations of the cerebral fissures, to the persistence of embryonic features, to the arrangement of development resembling those which exist in a lower group of the animal kingdom, notably the ape, have been noted to occur. Deficiencies in the cerebral vascular system prevent normal development and produce pathological lesions. Sclerosis, in its various forms, Wilmarth states, is a frequent morbid condition. Atrophy of nerve substance occurs in hydrocephalic subjects from pressure and stretching by fluid accumulation which interferes with nutrition through defective blood supply.

Tredgold's studies show that not only is there "a numerical deficiency of nerve cells in the brains of the ament, as compared with those of the normal subject, but there is present an irregular arrangement and imperfect development of individual cells in direct proportion to the degree of mental deficiency during life." A most important part of his descriptive work relates to the discovery of the presence of a "type of undeveloped nerve cells which it is stated have not been found in any human brain other than that of the ament." Similar cells, however, it is affirmed, have been described by Bevan Lewis in certain layers of the cerebral cortex of the ape—a very interesting suggestion as to man's *ascent* in the scale of animal life. Wilmarth has noted tracts of considerable size in the brains of aments in which very few cells were present, and Spiller in the comparison he has made of the brains of feeble-minded and of normal individuals, found a decrease in the number of cells in the feeble-minded.

In the ament, therefore, there is not only a scarcity of nerve cells, but they may be endowed, from the period of embryonic life, with defective elements, which deprive them of the power of resistance to the influences of diseases and toxins, and of the changed conditions of life which accompany the adolescent period. The strain upon the general nervous system at these periods may produce dementia—amentia passing into dementia.

Sufficient information has been gained from this brief review of the labors of those who have devoted time and talent to the study of the histological and pathological conditions found in the brains of the ament to make it not difficult to fix his status, and to make it the duty of the State to inhibit the propagation of his kind. His return to normal states by training is impossible—educational methods will help in certain classes, but it will not take from him the constant danger of perpetuating the flow of degeneracy. Eighty is stated to be by Tredgold, a small percentage to give to the cause of heredity.

Associated with the question of the influence exerted by heredity in producing the defective classes amounting, as stated by Tredgold to the large percentage of eighty, it will be of interest

to quote the statement of Bemiss, as given by Barr (Journal of Psycho-Asthenics, December, 1911), who in an exhaustive study of 833 consanguineous marriages found 3,943 children. Of these 1,034 were defectives, 308 idiots, 145 deaf and dumb, 300 scrofulous (tuberculous), 85 blind, 38 insane, 60 epileptic and 98 deformed, while 883 died in early infancy—indeed an appalling picture of disease and dengeneracy acquired through consanguinity, which Barr very truly defined as "heredity intensified," the subjects being the offspring of either intemperance, defect, disease or gross immorality.

He reports an instance in his own experience where for seven generations, covering a period of 100 years, a family has married and intermarried with over 80 idiots and imbeciles as the result, presenting a concentration of neuroses, as disease was rampant in the family.

These statistics, to which many more might be added, call loudly for united action in demanding that the law shall forbid, under heavy penalty, the marriage or the cohabitation of the unfit.

Of the defective subjects found in training schools, experience shows that they may be divided into three classes, those of a lower, a middle and a higher grade. In the lower grade the mental deficiency is so marked that they must be largely in charge of a caretaker. The higher grade, manifesting a greater development of distorted nerve power, occupy a position perilously near to dementia, which is liable to progress rapidly under the influence of strain as above noted. The middle grade is susceptible of being developed to a limited degree and under favorable conditions may take their place in the community as a self-suppporting class after asexualization has been performed to inhibit procreation, thus relieving the State of the burden of their care and keep.

We now approach in our study the question of the character of the surgical procedure which shall be performed in inhibiting procreation. As experience has taught that in many of the criminal and defective subjects, inverted or perverted sexual diseases and practices are the dominating factors of their disordered condition, I have advocated asexualization, and I have maintained that the State in authorizing any surgical procedure upon the defective subjects, idiot, imbecile, epileptic or confirmed criminal has a two fold duty to perform, first to inhibite procreation, and second, especially in the defective minor, to abolish sexual desire, which is regarded as an important contributing cause to the condition of mental, moral and physical degeneration which is present and which by the testimony of those with experience in the care and treatment of these subjects, cannot be improved in satisfactory manner so long as the sexual desire remains. As an illustration of the vital importance this question bears to the duty of the State in the treatment of the defective subject I will recite an experience given to me by the officers of an institution for the training of feeble-minded subjects. Among the inmates was a young man who was so completely dominated by sexual passion that he was kept under constant restraint in the care of keepers and not permitted to go upon the public highway unattended. No female was safe from his assaults; escaping the care of his keeper he would be found in the mangers or in the sties, wallowing in mire and filth, in his abortive efforts to gratify his perverted sexual desire with the beasts confined in those places. All ordinary measures of treatment having been exhausted castration was performed with the most beneficial result, the subject in due time becoming a useful servant, performing in faithful manner such duties as his limited intelligence permitted him to comprehend.

In contrast there was another inmate, younger in years and likewise dominated by perverted sexual passion, but in less degree. In this case it was thought advisable to perform vasectomy, with the feeling that this operation would accomplish all that was desirable, and this was the result given to me by one of the officials. "This inmate," he stated, before the operation, "was a thief, a liar and an inveterate masturbator, and he is still a thief, a liar and an inveterate masturbator. His sexual passions are, if anything, intensified and he is not permitted to associate with boys of his class, on account of the debasing practices which he teaches them."

This is not an attractive recital, but it teaches a lesson which should be diligently studied by all sincerely interested in helping, in proper manner, the defective subject and in promoting race betterment.

Dr. Martin W. Barr, Chief Physician of the Pennsylvania Training School for Feeble-Minded Children, the distinguished author of a comprehensive work on "Mental Defectives" and possessed of wide experience in the care and treatment of defective subjects as the Chief Physician of one of the largest institutions devoted to this special work in this country, if not in the world, writes me: "Sexual exaggeration exists in all classes of mental defectives, idiots, imbeciles and epilepties. Sexual perversion is, I find, confined to the imbeciles and younger epilepties. In the older epileptics, my experience is that desire almost entirely ceases. Vasectomy is not nearly so effective as actual castration (accomplishing asexualization), but I feel it is better than nothing. The sexual appetite exists, but in most cases is held in reasonable abeyance." In a former communication he wrote: "Since you were here we have had nine castrations and four vasectomies and there has been marked improvement in every case. We still expect to have a number of operations."

Dr. Barr in "Mental Defectives" quotes the statement of Dr. F. Hoyt Pilcher, Institution for Feeble-Minded Children, Winfield, Kansas, as follows: "Much distressed by debasing habits

rife among the children of his institution, and having exhausted every means of reformation through discipline, he, after consultation, castrated 58 boys with resulting gain in almost every case of marked improvement both mental and physical." Also, Dr. Everett Flood, Superintendent of the Hospital for Epileptics, Palmer, Massachusetts, reports 26 cases in which asexualization was performed. Sexual appetite seemed to disappear in all but two cases, and appeared in these only periodically.

The opinion expressed by Dr. Barr confirms the view I have taken upon the character of operation which should be performed in these cases and I reaffirm my belief that it is a gross injustice to the defective, the legitimate subject of operative interference by reason of his morbid condition, to perform an operation of a modified character, as vasectomy, and permit the cause, the very essence of his disordered state, to remain, to put him in a condition of "quasi torture," with the perverted sexual instinct as completely present as it was before the operation, plus the conditions which would inevitably arise from an incompleted orgasm; better a physical mutilation by castration than a functional mutilation by vasectomy, and may we not say the avoidance of both conditions by an operation, cord ligature, which accomplishes all that is sought to be accomplished, the inhibition of procreation and the abolition of inverted or perverted sexual appetite.

In a previous paper I have alluded to the advantages claimed by the advocates of the operation of vasectomy as an "office operation," and referred to the reports of the operations performed in different parts of the country to accomplish various results in men and women, largely in the latter to escape the duty of motherhood,—some normal and others belonging to the class of perverts and degenerates, who desired to escape the penalties of their unlicensed sexual indulgence, and I directed attention to the second clause of the Connecticut law which states: "Except as authorized by this act, every person who shall perform, encourage, assist in, or otherwise promote the performance of either of the operations (vasectomy or oöphorectomy), described in Section 1 of this Act, for the purpose of destroying the power to procreate the human species, or any person who shall knowingly permit either of such operations to be performed upon such person, unless the same shall be a *medical* necessity, shall be fined not more than one thousand dollars, or imprisoned in the State prison not more than *five* years, or both." This clause of the Act I commended as very praiseworthy and stated I believed it should form a part of every law of this kind in every State, in order to prevent the creation of a class of operators, who masquerading as members of the profession of medicine, would degrade the honorable calling by catering to the debased sentiment of those of the communities in which they lived, and on whom, aided through the columns of the public press, perhaps, they might perform illegal operations.

In the paper above referred to I have called attention to the necessity of performing asexualization in the confirmed criminal and in the vicious insane, and I submitted the opinions of a distinguished jurist and an eminent alienist who heartily approved of sterilization as a remedial and protective measure in the treatment of this class of defective subjects. The powerful aid of the public press has been invoked and it is promoting the education of public opinion by its discussion of the subject. From Judge Foster's paper I quote the comment made by one of the New York journals upon the law enacted in Connecticut, as follows: "Could such a law be enforced in the whole United States, less than four generations would eliminate nine-tenths of the crime, insanity and sickness of the present generation in our land."

Since this paper was written, the Legislature of the State of New York has enacted a law, April 18th, 1912, and placed it upon its Statute books inhibiting procreation in habitual criminals, vicious insane, feeble-minded, epileptic, and others belonging to the defective classes. The law creates a Board, to be known as the Board of Examiners of Feeble-minded, Criminal and Other Defectives, to have supervision over the matter, the Board to consist of one surgeon, one neurologist and one medical practitioner with ten years' experience. Recently the members of the Board have been appointed. In enacting this law the State of New York has followed the example of nearly a dozen states which have placed upon their Statute books similar laws, giving evidence that their citizens have been aroused to the dangers which confront the communities in the unrestrained flow of degeneracy through the power possessed by the defective classes to propagate their kind.

Supplementing the above statement, I quote the action recently taken by the Supreme Court of the State of Washington, as follows: "The constitutionality of the law providing for the sterilization of habitual criminals was upheld by the Supreme Court today in sustaining the sentence imposed on Peter Fielen of Seattle, who also is under sentence of life imprisonment. The Court found that medical authorities agreed that the operation was neither dangerous nor painful, and held that such punishment was not cruel or inhuman. The case was the first of its kind to come before the Supreme Court by the State.

A notorious criminal is at this time an inmate of an insane hospital for the criminal insane whose history, antecedent to the crime of murder committed by him, shows that he was a legitimate subject for treatment as a defective.

A young man, graduate of an educational institution in which he was fitted for the high calling he assumed as his work in life, has gone to the electric chair to expiate the crime of murder, the taking of the life of a confiding

young girl who looked for protection to his high office. The self-performed operation of castration in his case proclaimed to the world his appreciation of the cause of his downfall, the disordered mental condition which took from him the rational control of his sexual instinct, vitiated his moral attributes and developed the baser elements of his being.

In both of these cases the power and the majesty of the law have controlled their fates, and demanded acts of expiation. Can we not, in common consent, say how far better it would have been if the power of the law had been invoked before the commission of their crimes in giving to these defective subjects the supreme assistance, through surgical procedure which their disordered states, mental and physical, claimed, in this manner contributing to their betterment and the positive saving of human life? If the record of their lives has been correctly given, each manifested at early ages symptoms of such perverted sexual instincts as should have attracted the attention of a parent or guardian, and such medical advice should have been sought as would have relieved the diseased conditions from which they were suffering.

It will be of interest, in connection with the study of our subject, to direct your attention to the part classes of defective subjects take in the social economy of our country. The feeble-minded, the insane and the criminal classes constitute so large a part of our population and manifest such startling increase in number each year as to excite great concern on the part of all who, as sociologists, philanthropists and criminologists, are seeking to promote the betterment of the human race. The elaborate work of our Census Bureau furnishes statistics which may well cause us to take note, and arouse us to an intelligent appreciation of the great dangers which now confront us, and which in the future, unless some radical measures of relief are devised, will overwhelm us as a nation and block out pathway in taking the position among the peoples of the world which belongs to us.

Decennial enumerations of the feeble-minded in the United States have been made since 1850. Until 1880 the enumerations were rather incomplete. In that year the work of the regular enumerators was supplemented by that of physicians, who reported more than 29% of the 76,895 persons found to be idiots and the number of this class per 100,000 of population was 153.3. In 1890 the number enumerated was 95,609 and the ratio 152.7 per 100,000 of population. Of the 95,609 reported as feeble-minded at the census of 1890 only 5,254 were found in special institutions and but 2,469 in asylums for the insane. Estimates made in the year 1906 by competent authorities place the number of feeble-minded in the United States, that is, of persons so pronouncedly feeble-minded as to stand in need of institutional treatment, at not less than 150,000. On December 31, 1903, the entire population of special public and private institutions for feeble-minded numbered only 14,347,—in addition there were 16,551 supposedly feeble-minded persons among the inmates of almshouses, making a total of 30,898 under some form of restraint in institutions and leaving 119,102 without any restraint beyond possibly that of the home. Assuming that of the 119,102, one-half of the number were sexually competent, we are confronted with the appalling possibility of an addition to the defective class at that time which quite confounds computation. Since 1903 it can be safely stated that the number of feeble-minded in our country has been increased 25,000, if not more.

A recent report of a Special Committee of the New York Society for the Prevention of Cruelty to Children states that the number of feeble-minded children in the city's public schools is nearly 10,000, or about one per cent. of the school population. It further states that recent census statistics show that 30% of the feeble-minded children in the general population of the United States are the progeny of aliens, or naturalized citizens, and it is safely assumed that 8,000 of the 10,000 feeble-minded children who were found in the city when the report was made were brought by or are the offspring of the 9,000,000 aliens who have passed through the gates of the port of New York during the past ten years.

While the federal statutes are sufficient, the report adds, for the exclusion of mentally defective aliens, adults or minors, the state of affairs above indicated is due to the failure of Congress to appropriate sufficient funds for their enforcement.

The question of segregation as a method of the care and treatment of the defective class has been discussed for many years, and the plan has been in general force. Valuable as this method is its advocates fail to consider the subject in its economic aspect, and to fully appreciate the fact that the plan does not offer any opportunity for the return of the defective subject to his duties as a citizen, or his self-support as a member of the community, freed from the ever-present danger of perpetuating his kind. We have learned above that the class of imbeciles may be divided into three grades, low, middle and high, and that of these grades the middle is susceptible of a limited education and is more dependable than the other grades. Deprived of the ability to propagate their species this grade may live in the home and take part in the support of the family or engage in work which will earn limited wages. Under the plan of treatment suggested the State will be relieved of his care and keep.

That public and private institutions must be provided for the imbeciles of the low and high grade is evident, in which mental and moral training shall be conducted, and as well medical treatment afforded. These institutions are multiplying in the United States. The Census Re-

port for 1890 gave 20 public and 4 private institutions. In 1903 there were reported 28 public and 14 private institutions, an addition of 8 public and 10 private institutions. The Pennsylvania Training School for Feeble-Minded Children, a private institution which, however, receives State financial aid is one of the largest in the country containing 1075 children, 604 boys and 471 girls. Since 1890 seven States have established special public institutions for the feeble-minded. The public institutions are located in twenty-three States of which only three have more than one—two have one small private institution and no public. Twenty-four States have neither public nor private institutions for the feeble-minded.

The above statistics claim attention and suggest an inquiry with regard to the fact that both the States of the country and private individuals are moved to the duty of providing institutional care for the feeble-minded as well as for the insane. Prior to the year 1850 it may be stated that the home of the feeble-minded was largely in the almshouses of the country in which the care was of the most inadequate kind, no efforts whatever being made to conduct mental or moral training. The movement to provide both public and private institutions began in Massachusetts and in the Middle States, several of the Middle West, and a few of the Far West, settled largely by those coming from these States. With the exception of the State of Virginia, which has one small private institution and no public, the States of the South are without either special private or public institutions for the feeble-minded. What is said of the insane, so far as the existence of institutions for their care is concerned, may be said of the feeble-minded, that is whether the erection of new institutions for their keep signifies an increasing ratio of feeble-minded in the population, or merely an enlightened public demand for proper institutional treatment of the mentally deficient—this is a question not decided. The increase in the number of private institutions for the care of the feeble-minded may be significant in showing the influences exerted by conditions which take so large a part in our modern social life. These institutions are practically a product of modern times, and as a rule it may be said, receive the subjects belonging to those who are financially able to pay for their care and treatment.

As the confirmed criminal has been included in our list of defective subjects in whom procreation should be inhibited, a word as to the prison population in our country, as reported by the Census Bureau in the year 1910 may be of interest in our study. The prison population of the United States on January 1, 1910 was 113,579 and the number of commitments to prisons or other penal institutions during the year 1910 was 479,763, including every class of offense from vagrancy to murder in the first degree. The ratio of prisoners to population on Jan. 1, 1910, was 125 to 100,000 and the ratio of commitments to population during the year 1910 was 522 to the 100,000. Thus it appears, as aptly stated by Dr. Hill, Chief of the Bureau of Statistics, that at the beginning of the year 1910, one person out of every 300 in the United States greeted the new year in prison or in jail, and that during the year 1910, for every 190 persons in the total population, there was one commitment to prison or jail for a longer or shorter period, ranging from one day to a life sentence.

Those who are the subjects of a form of insanity which is vicious in character we have included in the list of defectives to be treated by surgical procedures which accomplish asexualization. Hospitals for the insane contain many subjects of this kind and in a number of cases it has been shown that benefit has resulted in both the male and female from such operations, removing conditions mental, moral and physical which are due to states of sexual exaggeration. The startling increase of insane population in our country is a subject for serious consideration, and is one which claims the attention of all interested in the welfare of our people. A special inquiry instituted by the Census Bureau for the period between the years 1904 and 1910 shows that, while the population of the country increased about 11% in this interval, the population in insane asylums increased about 25%, the number of insane per 100,000 population increased from 186.2 in 1904 to 203.8 in 1910 and the number of institutions for the insane increased from 328 in 1904 to 372 in 1910, an increase of about 13%,—the average number of inmates per institution increased from 458 in 1904 to 504 in 1910. These figures afford a striking indication of the prevalence of insanity in our country and it is somewhat startling to reflect that the 187,454 patients confined in hospitals for the insane make up a population three times larger than that of a city containing a population of 60,000 people.

Truly do not these statements give us thought and arouse us to an associated action. Ambassador Bryce, in his address at the Darwin Centennial Anniversary held by the American Philosophical Society in Philadelphia a year or more ago, said of Darwin that not the least part of his great work was that he had taught men to think. May we not truly say that the great problems in our social life, the solution of which challenges the best endeavors of man today, should not only compel men to think, but to act.

A consensus of opinion is obtainable largely, if not entirely, through a general dissemination of knowledge gained despite the antagonism of those wrapped in the misleading cloak of blind ignorance or sheathed in the unyielding armor of unreasoning prejudice. The great evils of our social life, which sap our vitality, lower our mental and moral standards and curse, through the subtle agencies of heredity, the nation's offspring, should be fearlessly grappled with, and

placed under the control of the law. In this way, and in this way only, would it seem possible to contribute to the betterment of the human race and to hold out a helping hand to our brother, no matter in what condition or position of life his lot may have been cast.

PROPOSITIONS FOR DISCUSSION.

1. The State, in the exercise of its duty as guardian of the privileges and of the rights of its citizens, and, as well, charged with the duty of affording protection against conditions which are harmful to its social integrity, has the right to enact laws which will prevent the perpetuation of criminality and of dengeneracy by inhibiting procreation in the confirmed criminal and in the defective subject.

2. The confirmed criminal and the defective subject may be rightfully regarded as in a state of disease, mental, moral and physical, and therefore, the legitimate subjects for medical and surgical treatment.

3. Extended experience on the part of competent students of criminalogy and sociology, confirms the opinion that neither education nor punitive measures are effective in restoring the criminal and defective subject to normal conditions.

4. As heredity is conceded to be an important factor in the perpetuation of criminality and degeneracy, through the power of procreation, the fundamental treatment of these conditions consists in the abrogation of this power.

5. Experience teaches that in many of the criminal and defective subjects inverted or perverted sexual desires and practices are the dominating factors of their disordered conditions. In such subjects remedial and curative results can only be obtained by depriving them, through the chosen surgical procedure, of the sexual power.

6. That the testes and ovary produce an internal secretion which is necessary to the normal functioning of the body tissues has been demonstrated. It is believed that after cord or tube ligature sufficient blood supply, through the collateral circulation which is established, is distributed to these organs to maintain this secretion.

7. Surgical procedures instituted for the prevention of procreation in the confirmed criminal, pervert, degenerate, idiot, imbecile, epileptic and vicious insane should not be regarded as a method of punishment, but as a remedial measure, the sole objects of which are the betterment of the human race, through the arrest of the continually flowing stream of degeneracy and the mental, moral, and physical improvement of the defective subject.

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A CONTRIBUTION TO THE STUDY OF COCCYODYNIA.

BY CHARLES GREENE CUMSTON, M.D., BOSTON.

HAVING had several cases of coccyodynia, three of which I deemed advisable to operate upon, and finding a very meagre reference to the subject in both American and Continental text-books, it occurred to me that a short study of this interesting affection might not be out of place at the present time. The disease is characterized by a very severe pain in the ano-coccygeal region, the factors capable of giving rise to the process are many, the pathology is most variable and the violent localized pain is the only constant symptom. There are few affections more painful or more stubborn to treatment, and, strange to relate, the works on gynecology alone pay a little attention to it.

As far as I am aware, the first article on the subject of coccyodynia was by Dr. J. C. Nott of Mobile, and appeared in 1844 in *The New Orleans Medical Journal*. The question was not referred to again until 1869, when Simpson of Edinburgh published his work which contains a chapter on coccyodynia and diseases and deformities of the coccyx. Then later on came the articles by Scanzoni, Erichsen, Gosselin, Erb, Nélaton and others.

The coccyx is primarily composed of several independent pieces, true rudimentary coccygeal vertebrae, usually five in number, which become united together. The anterior aspect of the coccyx is concave and smooth and is in direct relation with the posterior aspect of the rectum. The posterior aspect is convex and rough. The lateral aspects are oblique from above inwardly, thus giving the bone a pyramidal shape. To the sides are attached the ischio-coccygeal muscles whose condition of relaxation or contraction can be estimated by digital examination per rectum.

The base of the coccyx presents an oval facette, articulating with the sacrum. Back of the articular surface are to be seen two projections, the cornua of the coccyx, which articulate with corresponding projections from the sacrum. The apex of the coccyx is rounded, occasionally bifide. It gives attachment to the anal sphincter and to the levator. The coccyx retains its relations with the surrounding structures by the muscles attached to its borders and tip, and particularly by its articulation with the sacrum. The articulation is effected by anterior, posterior and lateral ligaments. The anterior ligament is formed by the periosteum extending from the base of the coccyx to the tip of the sacrum,

while its slight solidity explains why the coccyx can readily be pushed backwards.

On the other hand, the posterior ligament is thick and resisting. It is attached to the borders of the inferior groove of the sacral canal and reaches the posterior aspect of the coccyx. It is reinforced by two lateral expansions which are fixed to the lateral aspects of the sacral apex and to the upper angles of the coccyx.

A rather hard interossous fibrocartilage is present between the articular surfaces, and the greater the mobility of the coccyx, the more this fibrocartilage is resistant. During gestation this fibrocartilage softens, thus allowing the coccyx to be easily pushed backwards during labor. It undergoes ossification between the ages of thirty-five to forty years and then the sacro-coccygeal joint becomes completely ankylosed.

It happens occasionally that the several pieces forming the coccyx do not become united and not infrequently one finds little joints, particularly between the first and second, or second and third coccygeal pieces. These little joints are composed of small articular facettes, between which little fibrocartilaginous disks are interposed and are united by a fibrous sheath.

From the writings of gynecologists one would be led to assume that coccyodynia was an affection peculiar to the female, and although it undoubtedly is far more frequent in women, nevertheless, it is not exceptional in the male. Therefore one must admit an obstetrical, genital and traumatic factor in the production of the lesion.

In cases where coccyodynia begins after a labor, difficult or not, its occurrence may be explained as follows: The traumatism of the labor acts on the coccyx and neighboring structures. The forced backward displacement of the coccyx and rupture of the lateral sacro-coccygeal ligaments are certainly quite enough to set up an exudation resulting from a hyperemic process between the several ligaments of the coccyx and this bone and the sacrum. The various dislocations and synostoses which often result in the bony structures after labor, giving rise to a change of position in the posterior and lateral coccygeal ligaments, causes compression and stretching of the coccygeal nerves. It would appear that the use of the forceps is prone to cause coccyodynia, although this is by no means always the case, as the following instance will show.

CASE I. Mrs. G., 28 years of age, Provincetown, Mass. Bipara. First child three years ago; second labor nine months ago. Both labors long but ended without forceps. From the date of the last birth the patient has suffered from severe pain at the end of the spine when lying down or sitting. She gets up from chair with difficulty on account of severe pain. Defecation painless. Coitus impossible.

Examination revealed a slightly lacerated cervix and perineum. Uterus in good position, adnexa normal. With two fingers in the vagina the coccyx can be made to move backwards and forwards like a loose tooth in its socket. Pressure over coccyx gives rise to intense pain.

The patient demanded relief, therefore resection of the bone was advised and carried out. The operation gave instant relief and the patient has remained free from pain since it was done two months ago. The cervix and perineum were of course repaired.

CASE II. Mrs. W., aged 34 years, Brookline, Mass. Primipara. Forceps delivery two and a half years ago, since which time the patient has suffered from violent pain at end of spine, particularly when sitting and during defecation. Is obliged to keep on side when in bed. The pain has considerably increased during the last year, to such an extent that the patient has been obliged to resort to the use of narcotics.

Examination showed a slightly lacerated perineum, uterus and adnexa normal. The coccyx is very freely movable and the surrounding structures are thickened as if edematous. Great pain elicited when coccyx is pressed upon. Given the evidently localized seat of pain and history of the case, resection of the coccyx was done. This is now four years ago and the patient has been free from pain ever since.

Referring now to the genital origin of coccyodynia, it may be said that diseases of the uterus or adnexa are supposed to give rise to it by gynecologists, but when this is the case I am of the opinion that the coccygeal pain is purely neurasthenic, resulting from the pelvic lesions. Chronic metritis, ovarian and tubal inflammation and retroversion of the uterus are supposed to produce coccyodynia, but from the surgical viewpoint one can only come to the conclusion that an unbalanced nervous system is at the bottom the causative factor in the coccygeal pain. For this reason I have never interfered with the coccyx in these cases and have merely directed proper surgical measures for the pelvic lesions, and although not always successful, much has been accomplished towards the betterment of the patient's condition.

In the male a violent pain may be encountered in the anococcygeal region in cases of chronic prostatitis, but this is rather a topoalgia, the result of marked nervous depression and sexual hypochondria, if such a condition exists, which I rather doubt.

The etiologic circumstances which will now be examined are encountered both in the male and female, likewise in children. Here we have traumatic and nontraumatic factors. For the latter one has diseases of the anus and rectum, such as fistula, ulceration, fissure, hemorrhoids and various neoplasms which react on the perineal muscles. The local effect of cold in the production of coccyodynia is simply a myth and not to be considered by the twentieth century medical man. Constipation has, likewise, been considered a causative factor, but here, again, there must be a perverted judgment on the part of the profession who look upon this cause seriously. I shall point out in considering the semeiology of coccyodynia, that the characteristic pain of this affection is considerably in-

creased in many instances during defecation, and thus without appreciating it, the patient considers that constipation is the cause.

Coccyodynia may result from traumatism. Equitation has been supposed to produce it, but I would point out that army surgeons do not appear to meet with it among the cavalry, where it should not be infrequent were this factor of any considerable importance.

Most usually when one is dealing with a traumatic coccyodynia the cause is a fall on, or shock involving the coccyx directly, probably producing a dislocation, fracture or a simple contusion of the bone.

From what has been said, it is clear that coccyodynia can be produced by most varied causes. However, the etiology of the affection allows one to conclude that coccyodynia is more frequently met with in the female, labor being its principal factor. Outside of this, coccyodynia is encountered with equal frequency in both sexes.

Coccyodynia has been met with in children by Hörschelmann, one case being three, the other five years of age. Courty and Nélation have met with it in young girls without any genital lesions, but it is probable that these writers were dealing with neurasthenic individuals.

From what has been said of the etiology of coccyodynia it is evident that little can be said of its pathology, for autopsies on these cases must be very infrequent. In some cases, however, the lesions present can explain the affection by ankylosis of the sacrococcygeal joint, sacrococcygeal arthritis, ostitis of the coccyx, or fracture or dislocation of this bone. But these cases are not commonly met with and in the large majority no lesion can be made out that explains the painful phenomena, so that one is compelled to place them in the class of topoalgias.

The pathogenesis of coccyodynia is most obscure as it cannot be elucidated by either pathology or etiology. It is clear that there are some cases that can be explained by bone or nerve lesions following upon a fracture of the coccyx, but when no evident lesion can be detected the cause and origin of the affection are very difficult of explanation. It hardly can be due to a neuritis of the coccygeal branches because never have any trophic or vasomotor disturbances been observed. Many writers think that it is a functional disturbance, the initial traumatism having produced a violent pain; this persists without there necessarily being any anatomical change in the parts. Thus may be explained cases of coccyodynia following complete fracture of the coccyx and those resulting from a simple contusion of the sacrococcygeal region.

As has been remarked, coccyodynia is characterized clinically by painful phenomena localized in the sacrococcygeal region. The pain prevents the patient from lying with comfort in bed or sitting, and sometimes walking is interfered with.

The commencement of the affection may be sudden or it may progressively develop. When sudden, it appears after labor or a trauma. The pain is sharp, severe and continuous, or it may occur in paroxysms.

When the affection develops progressively, the pain comes on slowly. At first it is dull, the patient complaining more of a feeling of weight or tension. But it daily increases until it reaches considerable intensity.

When fully developed, the pain, which is the first evidence and principal symptom of the trouble, is most frequently complained of over the sacrococcygeal joint, the maximum point being in the median line or slightly to the side. Generally it is limited to the sacrococcygeal region but infrequently it may radiate a certain distance. The pain is continual and severe but may occur in paroxysms several times daily. These take place sometimes spontaneously, but usually are produced by some movement on the part of the patient. When perfectly quiet and all pressure removed from the coccygeal region the pain is at its minimum, but in some cases the slightest movement causes it to reappear in all its acuteness. A change in position or a constipated stool are the most frequent causes of the exacerbation. Cold or heat do not seem to produce the paroxysm and the same may be said of light pressure over the cutaneous surface of the region, a condition observed in certain types of neuralgia.

In order to prevent the pain from coming on the patient is compelled to adopt certain positions, but sitting for any length of time is impossible and the dorsal position in bed can never be assumed. In some few cases, fortunately very infrequent, the pain is continuous no matter how the patient may be placed, so that life actually becomes a burden.

Local examination shows nothing abnormal over the coccygeal region and alone palpation gives any clue to the affection. This causes severe pain over the coccyx, but better still, is to palpate through the vagina or per rectum in the male. One thus explores the anterior aspect of the bone, and any abnormal condition is readily detected by the exploring finger. By pressure with the finger, in order to ascertain the mobility of the coccyx, great pain is elicited and may last for several hours, therefore care should be taken to limit this part of the examination as much as possible.

Sometimes the coccyx will be found deformed or increased in size, in which case there is probably an osteoperiosteal hypertrophy similar to that found in cases of stubborn neuralgia. Generally, however, no change in the bone can be detected. In one or two cases I have found considerable thickening of the surrounding soft structures which appeared to be of an edematous nature.

Coccyodynia may undergo its evolution in an

acute way and soon disappear, but unfortunately this is very uncommon, and usually it takes on a chronic type. This is more prone to occur in fracture or dislocation due to labor or trauma. Under these circumstances, when left untreated, the affection continues with alternatives of increase and improvement.

From the detailed description given of the symptoms of coccyodynia, the consideration of the diagnosis will be rendered easier. It might appear difficult to mistake this affection for some other lesion, since spontaneous pain increased by pressure and movements is practically pathognomonic. But if the diagnosis of coccyodynia is generally an easy matter, there, nevertheless, are cases which may be overlooked, and in every case where a patient complains of pain in the coccygeal region a careful digital examination should be carried out.

In considering the differential diagnoses the following conditions are to be sought for: A methodical examination of the coccyx by palpation will eliminate any lesion if none is present. In sacrocoxalgia the pain is distinctly located in the sacroiliac joint and not in the sacrococcygeal articulation. Then again, pressure over both iliac crests awakens the pain in sacrocoxalgia but does not give rise to any in coccyodynia. Neuralgia of the lumbar plexus need not call for our attention but that of the sacral plexus may give rise to some confusion if a careful exploration is not carried out. I would point out that in the preataxic period of tabes fulgurating pains may occur in the anococcygeal region, but the true nature of the trouble will be detected by the pupillary symptoms particularly. I would particularly warn against the neurasthenic woman and her accompanying backache as a source of error and I am convinced that in many cases of failure of surgical treatment the coccyx has been removed from these subjects.

We will now briefly refer to the treatment of coccyodynia since *ars medica est id quod est propter therapeuticen*, and let it be said at once that medical treatment has proved itself useless so that no mention will be made of the many drugs and procedures which have been advocated from time to time.

The treatment is strictly surgical and if one is dealing with a *real case of coccyodynia* very excellent results will be obtained by resection of the coccyx in most cases. I purposely say "in most cases," because my third operative case was not so successful as the first two reported, and although great relief was procured by the interference, still the patient experiences some dull pain from time to time although by rest it is relieved.

CASE III. Mr. J., aged 37 years, no profession: had always enjoyed good health. While in the country he sustained a fall, striking with considerable force on the coccygeal region. At the time there was considerable pain but this subsided after a few days. However, about three weeks later the patient began to be troubled with paroxysms of sharp pain occurring several times daily, particularly after exercise.

When he consulted the writer he had been suffering severely for over six months.

Examination per rectum revealed an ununited fracture at about the middle of the bone and a very great amount of pain over the sacrococcygeal joint when the coccyx was forced backwards.

Resection of the coccyx was done, resulting in giving much relief from the acute pain. The operation was done over five years ago and although quite satisfactory to the patient, he still has more or less dull pain from time to time but which is quite bearable.

Among the operations advised, resection of the coccyx is the only one worthy of consideration. The patient is placed in right lateral decubitus so as to render the perineal and coccygeal regions accessible.

An incision measuring from seven to eight centimeters, starting one centimeter above the sacrococcygeal joint is carried down to one centimeter below the tip of the coccyx, includes all the structures covering the bone, including the fibrous covering. The soft parts are then peeled off with a periosteal elevator and with a chisel the coccyx is disarticulated. It is then drawn out of the wound and the lateral ligaments and sphincter are detached from it. Care must be taken not to wound the rectum, which lies fairly close to the bone.

If the patient is fat a second incision made transversally over the sacrococcygeal joint will give the surgeon a larger operative field in which to carry out the disarticulation.

The hemorrhage is only slight, requiring but few ligatures. The deep structures are brought together with kangaroo sutures while the skin incision is closed with silkworm gut. On account of the proximity to the anus, I think it advisable to insert a small cigarette drain, bringing it out at the upper angle of the wound.

The patient is kept in bed for a few days and then allowed to be up and about. The bowels should be confined for the first four days, by which time the drain is out and the wound practically healed.

Clinical Department

RESULTS OF THE COMPLEMENT FIXATION TEST FOR GONORRHEA AT THE MASSACHUSETTS GENERAL HOSPITAL.

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THE antigens used in the great majority of the tests were made from mixtures of cultures of gonococci from 3 to 11 different patients. The method of preparing the antigen which has seemed most practical consists in scraping off the 24 hour surface growth on hydrocele agar,

suspending it in sterile normal salt solution and then allowing the micro-organisms to disintegrate in this, during some days or weeks while being kept in the ice chest. The tests were all made by Dr. James Homer Wright, the Director of the Pathological Laboratory. This series covers 256 tests on patients treated in the House and Out Patient Departments, and a few private patients of members of the staff. The reactions are described as negative, weakly positive, moderately positive and strongly positive. In the general summary here given, however, the reactions are grouped as being negative or positive. When a reaction has been said to be suspicious it has been classed as positive. The cases have been divided anatomically into the following groups:

(1.) Urethral (in the general summary, the cases of vaginitis, vulvo vaginitis, cervicitis, etc., are included in this class.)
(2.) Arthritic.
(3.) Pelvic (pus tubes, pelvic abscess and other lesions).

There were also a number of patients from the wards with various general medical and surgical lesions where the test was made, without reference to gonorrheal history. There are two cases of iritis and seven volunteers with no gonorrheal history.

The urethral cases (exclusive of the cases of vaginitis, etc.), of which there were the greatest number, 119 were divided into three classes. First, those clinically positive, where definite lesions were present as prostatitis, vesiculitis or stricture, etc. Gonococci were not demonstrated in many of these cases, but all had gonorrheal history. Second, those which were clinically negative, showing no signs at the time of making the test, and third, those clinically doubtful, which included the perplexing cases so often met when there is an occasional watery discharge, a few shreds in the urine, or a few leucocytes after prostatic massage. Of the first or clinically positive there were 60 cases, the blood being positive in 50. The 10 cases where the blood was negative were mostly cases of prostatitis of long standing, the gonorrheal infection being remote.

Of the clinically negative there were 30 cases, 21 showing a negative reaction; of the 9 showing a positive reaction, 1 is described as slow, 1 as suspicious, 6 as weakly positive. In 5 of these the gonorrheal infection was recent, that is, within a few months, one case showing a moderately positive reaction, claiming to have had a chemical urethritis only, as he had used a strong injection after exposure. This case, I think, is open to doubt. There were no strong positive reactions.

Of the doubtful or borderline cases there were 27, 18 showing a positive and 9 a negative reaction.

Of the lesions of the lower female genital tract there were 48, 24 clinically positive and 24 clinically negative. Clinically negative in this group means the cases were negative at the time of making the test, not all had a history of gonorrhea. There was but one positive blood, a case of vaginitis supposed to have been cured six months before.

Of the clinically positive a little less than half showed gonococci, but all showed discharge from the cervix or vagina or inflammation of Bartholini's glands. There were but 3 negative bloods, 1 of which had been previously positive.

There were 25 cases of arthritis. Ten of these had evident gonorrheal genitourinary lesions. All but 1 of these gave a positive reaction. In this case there was a moderate prostatitis of long standing. There were 4 cases with a history of gonorrhea, the genitourinary tract being negative at the time of making the test, of which 2 gave positive and 2 negative reactions. There were 6 cases of doubtful gonorrheal history, with 3 positive and 3 negative. One of the positive cases is of interest, it being a case of injury to the wrist, x-ray negative to fracture, but was said to be suggestive of Neisser infection.

There were 5 cases of arthritis supposed to be due to other causes. Four of these were negative and one positive, a case of poly arthritis in a woman associated with alveolar abscess; no history or evidence of gonorrhea.

Of these 25 arthritic cases, 14 had gonorrhea or a gonorrheal history, the blood being positive 11 times and negative 3 times. Six cases had a doubtful history, with 3 positive and 3 negative. Of 5 with a negative history 4 were negative and 1 positive.

There were 20 cases of pelvic disease; of these 12 were positive to gonorrhea at the time or giving a history of gonorrhea, most of them being acute salpingitis with operation, and all gave a positive blood reaction. There were 5 clinically doubtful cases, giving 4 negative and 1 positive reaction. Three were absolutely negative, all giving negative reactions.

The two cases of iritis were negative, although both had a history of gonorrhea. The genitourinary tract was also negative.

In 13 cases from the general medical wards, 8 showed a positive reaction. All of these gave a venereal history, although in some cases it was quite remote. The reactions were all moderately positive, except one which gave a strong positive one. This case was one of specific aortitis, which died. Autopsy showed also a salpingitis. In 22 general surgical patients there were only 3 moderately positive reactions. There was no gonorrheal history in any of these. In the other 19 the histories state no gonorrheal evidence.

The 256 tests may be summed up in general as follows:

		POS.	NEG.
Cases with gonorrheal history which are clinically uncured	109	95	14
Cases of gonorrhea in which cure is doubtful	27	9	18
	136	104	32

		POS.	NEG.
Cases where the diagnosis of gonorrhea is doubtful	16	5	11
Negative to gonorrhea history	17	0	17
Negative to gonorrhea by examination at time of test. History of gonorrhea in most cases	52	9	43
	69	9	60
Cases from the general service	35	11	24
	256		

These last 35 cases are interesting but are not included in this series as the information in regard to the condition of the G. U. tract is insufficient.

The following tables give the cases a little more in detail and it will be seen from these that as a general rule the tests correspond very closely with the clinical findings.

URETHRAL CASES.

Clinically Positive with Positive Blood.

		BLOOD.
1. M.	Epididymitis.	Positive.
2. B.	Discharge. Cloudy urine.	Positive.
3. J.	Smear positive. First urine turbid. Acute exacerbation.	Positive.
4. F.B.	Smear positive. Discharge. Urine cloudy (8 days).	Positive.
5. H.B.	Discharge. Urine cloudy with shreds.	Weakly. positive.
6. B.	Urine shreds. Some detritus after massage.	Moderately positive.
7. C.	Urine cloudy.	Weakly positive.
8. W.	Slight discharge. Gonococci 5 days before. Urine cloudy. (Acute case).	Suspicious.
9. S.	Detritus after massage. Epididymitis.	Weakly positive.
10. J.	Urine hazy under massage treatment.	Moderately positive.
11. B.	Urine hazy.	Moderately positive.
12. M.	Discharge and cloudy urine.	Moderately positive.
13. O.	Epididymitis. No other symptoms.	Positive.
14. F.	Dec. 22, 1911. Gonococci present. (3½ months later negative.)	Positive.
15. P.	Urine cloudy. Detritus after massage.	Weakly positive.
16. B.	Urine cloudy with pus. No gonococci found.	Moderately positive.
17. A.	Gonorrhea 1½ years ago. A. M. drop for long time.	Moderately positive.
18. H.	Urethritis and epididymitis.	Weakly postive.
19. A.	Chronic urethritis and stricture.	Positive.
20. V.	Anterior and posterior gonorrhea. Gonococci present.	Positively and moderately positive.
21. M.	Urine number of large shreds Prostatitis.	Positive.
22. H.	4 years moderate discharge	Weakly positive.
23. C.	Epididymitis.	Positive.
24. D.R.	Discharge. (Coarse and fine shreds.)	Positive.
25. Dr.L.	Posterior case 14 weeks. Shreds in urines.	Positive.
26. J.W.	Persistent shreds.	Positive.
27. J.B.	A. M. discharge and persistent shreds.	Weakly positive.
28. J.W.S.	At times discharge. Many shreds in urine.	Positive.
29. W.	Chronic prostatitis.	Weakly positive.
30. N.	Prostatitis with detritus.	Weakly positive.
31. S.	Stricture with prostatitis.	Weakly positive.
32. E.L.C.	Morning drop. Gonococci present, May 16, 1911. Prostate normal May 15, 1912.	Weakly positive.
33. A.C.	Gonorrhea several times. Urine cloudy. Pus from prostate.	Weakly positive.
34. P.C.	Gonorrhea. Epididymitis. Urine many shreds.	Positive.
35. T.D.	Gonorrhea 6 mos. ago. Urine shreds. Creamy discharge.	Positive.
36. D.	Gonorrhea Oct. 1911. Now pus from prostate. Urine clear on March 14, 1912.	Positive.
37. S.G.	Dec. 5, 1911. Gonococci found in pus from prostate.	Positive.
38. P.B.I.	Gonorrhea and epididymitis one year ago. (April 12, 1912.)	Positive.
39. J.W.O.	Smear shows gonococci.	Positive.
40. J.K.	Dec. 24, 1911. Abscess of prostate. Test negative. Mar. 23, lump still in prostate. Some pus in secretions.	Weakly positive.
41. E.M.S.	Morning discharge. Urine shreds.	Weakly positive.
42. A.K.	No discharge. Shreds look suspicious.	Positive.
43. W.	Gonococci present. Dec. 5. Dec. 30. No discharge. Urine clear with shreds.	Positive.
44. W.F.	Clinically positive. Urine shreds. Gonorrhea for long time.	Weakly positive.
45. W.R.	Slight moisture at meatus. First urine hazy, with shreds. Second urine cloudy.	Weakly positive.
46. F.S.	Moderate prostatitis. Stricture large calibre.	Weakly positive.
47. B.	Urine cloudy with shreds. Massage of prostate; much fine detritus.	Weakly positive.
48. C.	P.P.D. Gonococci present, duration 11 days. Anterior case.	Weakly positive.
49. K.	Prostatitis. Vesiculitis.	Suspicious.
50. F.K.	Gonorrhea 2½ months ago. Prostate much indurated.	Weakly positive.

URETHRAL CASES.

Clinically Positive with Negative Blood.

1. B.	Discharge. Urine cloudy.	Negative.
2. O.	Discharge with gonococci. Urine turbid. (Anterior case only.)	Negative.
3. S.	Detritus after massage. Stricture Dec. 12, 1911. Said to be free from symptoms May 2, 1912.	Negative.

4. C.	Slight discharge after massage. Pus in prostatic secretion. Gonorrhea one and two years ago.	Negative.
5. K.	Urine cloudy with shreds. Gonorrhea 1½ years ago.	Negative.
6. C. (See No. 4)	Still shows pus from prostate.	Negative.
7. S.	Gonorrhea 1 year ago. Now has glete.	Negative.
8. J.A.	Urine shows many shreds. (6 year old attack.)	Negative.
9. C.	Urine clear. Some sticking at meatus. Slight detritus after massage.	Negative.
10. B.	Some discharge. Prostatitis with detritus after massage. No gonococci on record since 1904 (7-8 years ago).	Negative.

URETHRAL CASES.

Clinically Negative with Negative Blood.

1. B.	One year after attack. Few shreds after massage.	Negative.
2. G.	Clinically cured. (Was positive 2 months ago.) Nothing from massage. Urine cloudy.	Negative. (Weekly positive?)
3. F.	Phimosis with pus (3 weeks.)	Negative.
4. R.	Gonorrhea 3 years ago. Clinically well.	Negative.
5. M.	Slight discharge from prostate. Clinically well.	Negative.
6. R.	Prostate massage negative.	Negative.
7. Z.	No signs for 10 years.	Negative.
8. K.	No evidence of gonorrhea.	Negative.
9. J.	No evidence of gonorrhea.	Negative.
10. B.	No evidence of gonorrhea.	Negative.
11. A.	Clinically cured.	Negative.
12. T.	Chronic urethritis. Prostatic massage negative.	Negative.
13. G.H.R.	Urethritis several years ago. Urine clear. No symptoms.	Negative.
14. B.P.	Gonorrhea sometime ago. Clinically negative. Urine clear.	Negative.
15. J.G.	Clinically negative.	Negative.
16. S.	Urine cloudy. Massage negative. No symptoms.	Negative.
17. V.D.C.	G. U. tract normal. Spasmodic stricture?	Negative.
18. S.	Clinically negative. Meatotomy.	Negative.
19. G.	Clinically well. No discharge. Urine clear. Nothing after massage.	Negative.
20. Dr.B.	Urethritis 6 years ago. Clinically well.	Negative.
21. S.	Clinically negative. Prostatitis.	Negative.
22. O.	Clinically negative. Prostatitis.	Negative.
23. P.	Prostatitis. Clinically negative.	Negative.
24. V.D.C.	Spasmodic stricture. No gonococci.	Negative. (Done twice.)

URETHRAL CASES.

Clinically Negative with Blood Positive.

1. S.	Clinically well. Massage negative.	Weakly positive. Negative.
2. M.	Clinically negative.	Negative. Slow.
3. M.	Clinically negative. Claims to have had a chemical urethritis.	Weakly positive. Moderately positive.
4. N.	A. and P. urethritis with epididymitis and epididymectomy in Dec., 1911. No urethritis, no prostatitis Jan. 27, 1912.	Moderately positive.
5. E.C.C.	Anterior urethritis. No signs for two months.	Weakly positive.
6. J.S.	Attack 7 years ago and 20 years ago. Clinically well. No pus from massage Feb. 27, 1912.	Moderately positive.
7. B.	Findings clinically negative for some weeks. (Recent case.)	Negative. Suspicious.
8. 484	Clinically findings negative, May 8, 1912. Working since Dec. 1, 1912.	Weakly positive.
9. P.	Apr. 6, 1912. No symptoms. Urine cloudy. Massage negative. Gonorrhea Jan. 10, 1912.	Weakly positive.

URETHRAL CASES.

Clinically Doubtful, Border-line Cases. Blood Negative.

1. J.W.B.	Gonorrhea 2 years ago (Oct. 1912). Treatment till Nov., 1911, then urine cloudy, rare pus cell from prostate. No symptoms Feb. 17, 1912.	Negative.
2. W.B.G.	Urine hazy. Prostrate indurated. No pus in smear.	Negative.
3. G.O.	Slight mucoid discharge. Shreds. (Drinking.)	Negative.
4. W.D.	Several attacks. Thin discharge after drinking.	Negative.
5. A.	Slight moisture, few flakes. (Right on edge.)	Negative.
6. C.	Fine detritus after massage.	Negative.
7. S.C.	Flare up. Smear negative. Urine shreds. Used injection. (Chemical irritation?)	Negative.
8. G.	Massage of prostate shows few shreds, occasional wet meatus.	Negative.
9. J.	Few leucocytes in prostatic secretions. Few shreds. No gonococci for month.	Negative.
10. C.B.	Urine shows few fine shreds only.	Negative.
11. R.A.	Slight persistent moisture. Some shreds.	Negative.
12. C.R.	Few shreds in urine. Nothing after massage.	Negative.
13. G.W.L.	Slight discharge at times. Schreds in some.	Negative.
14. G.	Slight moisture. Urine clear. No visible discharge.	Negative.
15. V.	No discharge. Urine clear. Few shreds.	Negative.
16. R.	Urine clear. First few shreds. Massage negative.	Negative.

17. C.U.	Says he has occasional discharge. None seen. Urine clean with shreds.	Negative.
18. W.	Gonorrhea 6 years ago. Still has some pus in urine.	Negative.

URETHRAL CASES.

Clinically Doubtful, Border-line Cases. Blood Positive.

1. V.S.	Urethritis supposed to be cured. For 4 months moisture. Urine, few shreds.	Weakly positive.
2. P.W.A.	Gonococci present 4 mos. ago (Dec. 1). May, 1912. Massage shows rare pus cell.	Weakly positive.
3. S.	Urine cloudy with occasional shred. Blood on Mar. 15 negative. On April 18, weakly positive.	Negative. Weakly positive.
	Patient has been having vaccines. On May 14.	Suspicious.
4. H.	Occasional shred in urine. Prostatitis for long time.	Weakly positive. (Suspicious.)
5. W.R.H.	Few shreds only. Nothing after massage.	Negative. (Suspicious.)
6. C.L.S	Fine shreds.	Negative. (Suspicious.)
7. B.	Had an infection 4 months ago. Massage negative. Urine fine shreds.	Positive.
8. A.	Old chronic case, very little to be seen. No discharge. Few fine flakes after massage.	Negative. (Suspicious.)
9. W.	Urine clear, few shreds; had detritus after massage.	Weakly positive.

VAGINITIS, ETC.

Clinically Positive.

1. M.	Smear positive. Bartolinitis.	Positive.
2. V.S.	Smear positive.	Weakly positive.
3. H.	Smear positive.	Weakly positive.
4. B.	Smear positive.	Positive.
5. H.	Smear positive.	Weakly positive. Later, negative.
6. G.	Clinically positive.	Positive.
7. A.	Clinically positive.	Positive.
8. C.	Clinically positive.	Weakly positive.
9. J.	Clinically positive.	Negative.
10. B.	Clinically positive.	Weakly positive.
11. M.	Smear positive.	Positive.
12. T.	Clinically positive.	Positive.
13. K.	Urethritis and vaginitis.	Weakly positive.
14. B.	Urinary symptoms. Suspicious case. Husband under treatment.	Weakly positive.
15. C.	2 years ago gonorrheal vulvo-vaginitis. Slight symptoms now.	Positive.
16. A.	Inflamed Bartolini's gland.	Weakly positive.
17. B.	Old vaginitis with pus tube.	Weakly positive.
18. H.	Vulvo-vaginitis. Gonococci present Mar. 14. On May 15, slight symptoms.	Weakly positive.
19. M.	Vulvo-vaginitis. Clinically positive.	Weakly positive.
20. C.	Vulvo-vaginitis. Clinically positive.	Weakly positive.
21. M.	Vaginitis. Clinically positive. Has had gonorrhea.	Weakly positive.
22. K.	History of gonorrheal cervicitis. Said to have joints.	Weakly positive.
23. H.	Pus from cervix. Operation for tube 2 years ago.	Positive.
24. O.	Cervicitis. Gonococci found 4 months ago. None since.	Negative.

VAGINITIS, ETC.

Clinically Negative.

1. N.	Smear and clinically negative.	Negative.
2. A.	Negative.	Negative.
3. B.	Negative.	Negative.
4. B.	Negative.	Negative.
5. Y.	Negative.	Negative.
6. T.	Negative.	Negative.
7. N.	Negative.	Negative.
8. D.	Negative.	Negative.
9. E.G.	Doubtful.	Negative.
10. O.	Clinically negative.	Negative.
11. C.	Clinically negative. Stricture and spasm urethra.	Negative.
12. M.C.	Clinically negative. Gonorrhea 9 years ago. Vaginitis.	Negative.
13. Miss R.	Vaginitis. Supposed to have been cured 6 months ago.	Moderately positive. Weakly positive.
14. Case 212	Vaginitis. Negative to gonococcus.	Negative.
15. E.	Negative to examination.	Negative.
16. R.	Some redness of vagina. Smear shows no pus.	Negative.
17. D.C.	Slight vaginal discharge. Smear negative.	Negative.
18. L.	Local condition negative. No gonorrheal history.	Negative.
19. G.	Vulvo-vaginitis.	Negative.
20. R.	Local examination negative. History suspicious. Child with ophthalmia. Husband with gonorrhea.	Negative.
21. T.	Leucorrhea.	Negative.
22. W.	Clinically negative.	Negative.
23. C.	Has had vaginitis. No discharge at present.	Negative.
24. M.	Leucorrhea. No gonococci found.	Negative.

ARTHRITIS CASES.

History of Gonorrhea Doubtful.

1. K.	Knee.	Negative.
2. C.	Knee. Negative to gonorrhea clinically.	Negative.
3. Y.	Pain about siatic notch.	Negative.
4. M.	Acute polyarthritis. Denies any venereal. Some leucorrhea. No other symptoms.	Positive.

5. F.	Infectious arthritis. No history of venereal. Knee.	Moderately positive.
6. S.	Injury to wrist. No fracture by x-ray. (Condition suggests G.C.).	Weakly positive.

ARTHRITIS CASES.

With Evident G. U. Lesions.

1. S.	Gonorrhea for 6 or 7 yrs. Stricture and prostatitis now. Subacute joints.	Positive.
2. B.	Chronic urethritis. G. C. rheumatism.	Positive.
3. P.	Prostatitis. Joints.	Weakly positive.
4. M.	Small amount of prostatic detritus. Joints.	Negative.
5. M.	Prostate tender. Joints.	Positive.
6. V.	Gonorrhea locally. Gonorrheal joints. Positive clinically.	Positive.
7. C.	Gonorrheal arthritis. Urine contains shreds.	Weakly positive.
8. K.	Gonorrheal arthritis. Positive clinically. Second attack of gonorrhea.	Positive.
9. D.	Multiple arthritis with pelvic condition.	Positive.
10. L.	Positive gonorrheal arthritis.	Positive.

Joint Lesions Due to Various Causes.

1. K.	Acute polyarticular rheumatism. History of sore throats, no gonorrheal evidence.	Negative.
2. S.	Polyarthritis. Gonorrhea 15 years ago. Many sore throats.	Negative.
3. R.	Alveolar abscess. Polyarthritis. No history or evidence of gonorrhea.	Moderately positive.
4. J.	Infectious multiple arthritis. Only apparent cause "bad teeth."	Negative.
5. C.	Subacute arthritis, ankle. No history of gonorrhea. No evidence of venereal.	Negative.

ARTHRITIS CASES.

History of Gonorrhea.

G. U. Tract Negative at Present Time.

1. T.	Urethritis 4 years ago. G. U. tract clinically negative. Some trouble with ankle.	Negative.
2. Case Dr.C.	Old history of gonorrhea. G. U. tract negative. Limitation of motion of elbow.	Weakly positive.
3. N.	History of gonorrhea. G. U. tract negative. Knees and ankles.	Negative.
4. N.	Obscure chronic rheumatism. Old history of gonorrhea. G. U. tract at present time probably negative.	Positive.

PELVIC CASES.

Tubes, Pelvic Abscess, Etc. Clinically Positive.

1. R.	Clinically positive. Tubes.	Positive.
2. C.	Tube.	Weakly positive.
3. R.	Salpingectomy. Hysterectomy.	Negative.
4. B.	Salpingitis.	Weakly positive.
5. Mrs S.E.	Pus tubes.	Positive.
6. S.	Acute salpingitis after normal delivery. O. P. Service B. L. H. ? of gonococci or puerperal sepsis.	Negative.
7. P.	Acute pus tubes. No operation. (Patient left.)	Positive.
8. B.	Pus tubes. Pelvic abscess. (Operation.)	Positive.
9. S.	Salpingitis. Operation, uterus removed.	Weakly positive. Moderately positive.
10. C.	Double tubes. No mention of gonorrhea in history.	Weakly positive.
11. S.	Acute appendix. Acute tube. Tube not removed. No other gonorrheal evidence.	Weakly positive.
12. M.	Double pus tubes. Clinically gonorrhea.	Positive.
13. Dr.M. case	Acute pus tubes. Gonococci in pus and blood, also joints with temperature.	Positive.
14. H.	Operative case of pus tubes.	Positive.
15. Dr.B. case	Operation for pus tubes. Persistent cervical discharge after operation.	Positive.

PELVIC CASES.

Tube and Pelvic Lesions. Clinically Negative.

1. Mrs. C.R.	Operation for pus tubes.	Negative.
2. W.	Salpingitis? Some tenderness in cul-de-sac. Resistance both sides. Smear negative.	Negative.
3. B.	Acute salpingitis secondary to ovarian cyst with torsion.	Negative.
4. S.	Double tubes, no gross evidence or history.	Negative.
5. T.	Pelvic peritonitis following delivery. No gonorrheal evidence.	Negative.

IRITIS CASES.

1. E.	No symptoms for one year.	Negative.
2. R.	Urine cloudy.	Negative.

GENERAL MEDICAL CASES.

1. F.	Chronic nephritis. Arteriosclerosis. No evidence of gonococci.	Negative.
2. L.	Cardio-renal. No evidence of gonococci.	Negative.
3. G.	Cardio-renal. One year ago slight urethritis. Clinically cured.	Negative.

4. T.	Cardio-renal. Gonorrhea and chancre 18 years ago.	Weakly positive.
5. W.	Cardio-renal. Uremia. Gonorrhea 20 years ago.	Weakly positive.
6. C.	Cardio-renal. Anasarca. No venereal stated.	Weakly positive.
7. G.	Cardio-renal. Retinitis. Gonorrhea 6 times, last 3 years ago.	Moderately positive.
8. M.	Aortic aneurysm. Chronic nephritis. No gonorrheal history but positive Wassermann.	Weakly positive.
9. F.	Cardio-renal. No gonorrheal evidence.	Negative.
10. H.	Aortitis. Aortic regurgitation. Gonorrhea several times.	Moderately positive.
11. L.	Cardio-renal. Bronchitis gonorrhea 30 years ago. 58 years old, ? stricture.	Moderately positive.
12. L.	Lobar pneumonia with pleural effusion. Gonorrhea 2 years ago.	Negative.
13. G.	Positive Wassermann. Death. Autopsy showed old salpingitis.	Positive.

GENERAL SURGICAL LESIONS.

1. K.	Osteomyelitis. (Staphylococci). No gonorrheal history.	Negative.
2. J.	Chronic appendix. No venereal evidence.	Negative.
3. C.	Pyonephrosis one side. Pylelitis. No gonorrheal evidence.	Negative.
4. W.	Colon pyelitis. No gonorrheal evidence.	Negative.
5. S.	Fracture. Lower leg. No gonorrheal evidence.	Negative.
6. W.	Scars of face. No gonorrheal evidence.	Negative.
7. B.	Retroversion. Suspension. No gonorrheal evidence.	Negative.
8. K.	Retroversion. No gonorrheal evidence.	Negative.
9. H.	Uterine fibroid. No gonorrheal evidence.	Negative.
10. M.	Pregnancy. Pyelitis. No gonorrheal evidence.	Negative.
11. W.	Tumor of vagina. No gonorrheal evidence.	Negative.
12. G.	Ventral hernia. Lacerated perineum. No gonorrheal evidence.	Negative.
13. W.	Fibroids. Hysterectomy. No gonorrheal evidence.	Negative.
14. L.	Cancer of breast. No gonorrheal evidence.	Negative.
15. G.	Gall stones. History of old pelvic abscess, non-gonorrheal in origin.	Negative.
16. S.	Fistula in ano. Hemorrhoid. No gonorrheal evidence.	Negative.
17. D.	Abscess leg. No gonorrheal evidence.	Weakly positive.
18. K.	Vesical fistula following typhoid.	Negative.
19. F.	Hemorrhoids. No gonorrheal evidence.	Negative.
20. S.	Double inguinal hernia. No gonorrheal evidence.	Weakly positive.
21. O.	Acute mastitis. No gonorrheal evidence.	Weakly positive.
22. D.	Acute appendix. No gonorrheal evidence.	Negative.

Reports of Societies.

THIRTY-FOURTH ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

(Concluded from No. 13, page 439.)

INDICATIONS FOR THE USE OF SALVARSAN IN SYPHILIS OF THE NOSE AND THROAT.

DR. JOSEPH L. GOODALE, of Boston, stated that his experience extended over 36 cases of syphilis treated by salvarsan. Intravenous injection was done in all cases without stomach disturbance beyond occasional nausea and chilly sensations. The author advised the use of salvarsan in preference to the former methods under the following conditions: First, where prompt removal of infectiveness is important on social or conjugal grounds; second, in cases exhibiting tendency to mercurial stomatitis; third, in those patients where lesions continually recur; fourth, for purposes of diagnosis where it is impossible to remove a specimen for examination, or where prompt control of a supposedly syphilitic lesion is important, as in gumma of the septum; and finally, in those forms of tertiary syphilis which exhibit slow development and a protracted course analogous to the serpiginous gummata of the skin. With reference to the power of salvarsan to effect a cure opinions are not yet unanimous, but the weight of evidence justifies the statement that this remedy in repeated doses, and in association with mercury, offers the best hope of attaining this result.

DISCUSSION.

DR. INGERSOLL, of Cleveland, said he had come to the conclusion that divided doses gave better results than a single large dose, with the extension of the period according to the results and the Wassermann reaction. Salvarsan in his opinion was not to be considered a specific, but the majority of cases clear up more quickly from its use combined with mercury. He briefly referred to a case in which this treatment cleared up a stubborn condition, the patient being absolutely unaware that he had a syphilitic lesion. Dr. Ingersoll also called attention to the effect of salvarsan on the auditory nerve, stating that if there is a lesion of the auditory nerve which antedates the syphilitic infection salvarsan should not be used because the nerve is less resistant than under ordinary circumstances, but if the condition of the auditory nerve is the result of the syphilitic infection salvarsan is not contra-indicated. He therefore advised that in all cases where this treatment was to be instituted a careful examination of the ear, especially of the condition of the auditory nerve, be made prior to its employment.

DR. B. R. SHURLY, of Detroit, said that the preparation of salvarsan was an all-important matter, and that but few chemists know how to prepare it properly. He referred to some of the cases which he had treated by the intramuscular injection of this drug, and stated that although this was the most painful way of administering it it was also extremely effective. He also added to Dr. Ingersoll's warning regarding the auditory nerve, the effect of the drug upon the heart, lungs, kidneys,

retina and optic nerve, and stated that it was his custom before adminstering this drug to fully acquaint his patient with the possible dangers.

Dr. Swain, of New Haven, called attention to the fact that laryngologists in making use of this remedy were touching upon a general disease through one small part of the body only. He considered salvarsan useful in making a diagnosis of syphilis, and therefore, if for no other reason, worthy of attention. He presented reports of several interesting cases, and stated that it had been proven by experiment that the system will receive and retain the intramuscular injection much longer than it will retain the intravenous injection.

Dr. Emil Mayer, of New York City, called attention to the fact that Ehrlich has now presented a new preparation of salvarsan which is supposed to be less harmful than the original preparation. He brought up the question of how soon after an injection of salvarsan was it proper to resort to the surgical repair of the destructive process occasioned by the syphilitic disease, giving as his own opinion that the patient should not be operated upon until a length of time had expired with negative Wassermann reactions.

Dr. Birkett, of Montreal, called attention to the very rapid effect of salvarsan in the treatment of hereditary syphilis and reported a very interesting case which had come under his care.

Dr. Hartman, of Baltimore, reported a case treated by salvarsan which cleared up under this treatment only to reappear again for treatment due to the neglect on the part of the patient to continue with the mercurial treatment. A second injection of salvarsan had so far proved sufficient to combat the disease.

Dr. Thrasher, of Cincinnati, referred to a case in which following the use of salvarsan the reaction to the Wassermann test disappeared for some weeks only to reappear in violent form in about two months, necessitating a second injection of salvarsan. He said that this case had failed to respond to the older methods of treatment but that those combined with salvarsan had had most happy effect.

Dr. Halstead, of Syracuse, reported the case of a boy suffering from tertiary ulceration of the posterior wall of the pharynx and the anterior wall of the soft palate treated by salvarsan, the ulcer healing rapidly; six months later the patient returned complaining of deafness and it was found that the anterior wall of the soft palate and the posterior wall of the pharynx had completely united. The drums were tremendously retracted, and it was practically a condition of middle ear disease. Dr. Halstead questioned whether it might not have been better for this patient to have progressed slowly under the use of mercury and potassium iodide with the probability that no adhesions would form, rather than hurrying the cure by the use of salvarsan accompanied by the formation of adhesions. He mentioned a similar case in which he refused for this reason to administer salvarsan.

Dr. Freer, of Chicago, stated that his assistant had seen in a clinic in Vienna twenty patients all with total deafness of the acoustic nerve in one or both ears following the administration of salvarsan.

Dr. Wagner, of San Francisco, stated that he learned from his visits among the hospitals and clinics in Berlin that although primary and secondary lesions were benefited by salvarsan, tertiary lesions did not respond as promptly. He suggested that the effect on the auditory nerve and the optic nerve might be due to a condition of anaphylaxis. He also said that stomatitis takes place less often and to a less intense degree when salvarsan has preceded the administration of the mercurial treatment.

Dr. Ingals, of Chicago, called attention to the fact that as far back as 1850 it was demonstrated that various substances could be injected into the veins successfully that would cause an eschar if injected into the muscle or other tissue, and that possibly for this reason it were better to inject salvarsan intravenously.

Dr. Harmon Smith, of New York City, cited a case of inherited syphilis in which salvarsan was used to all effects successfully, so far as the syphilitic lesion was concerned, but in three months the child was readmitted to the hospital with a marked case of jaundice and died in a short time. Dr. Smith was of the opinion that the injection of salvarsan had had a deleterious influence on the liver and gallbladder.

Dr. Winslow, of Baltimore, referred to three cases of malignant syphilis illustrating the great value of salvarsan in saving the structures attacked.

Dr. W. K. Simpson, of New York City, reported a case of syphilis in the tertiary state within the nose. The patient denied infection but the presence of a scar in the pharynx led the speaker to believe the case syphilitic. Wassermann reaction was positive. The patient did not respond to mercury and iodides nor very well to the intramuscular injection of salvarsan in conjunction with the older remedies, but showed marked improvement after an intravenous injection of salvarsan.

Dr. Stout, of Philadelphia, had found salvarsan very satisfactory in the treatment of indolent cases of ethmoiditis with dry, hard scabs in the posterior nares and pharynx, frequently presenting no history of infection.

Dr. Cobb, of Boston, thought that the nerve lesions referred to by Dr. Ingersoll and others might possibly be explained by the fact that it was not known in these cases whether or not there was any ulceration in the region of the nerve at the time salvarsan was administered, and if so the formation of scar tissue would be responsible for the resulting conditions. He also questioned if under such circumstances these patients might not also become deaf at a later period under treatment by mercury and potassium iodide. He considered salvarsan a very safe drug considering the very ill patients subjected to its use and the result of only 5 per cent. mortality. With regard to the length of time which should intervene between the administration of salvarsan and any operative procedure, he said that operations had been performed in syphilitic cases in the most virulent stage without harm to the patient.

Dr. Goodale, of Boston, briefly cited a case of ethmoiditis in which the headache was considered to be due to pressure from the middle turbinate, but removal of this bone did not relieve it; the administration of salvarsan, due to the fact that the patient had a history of previous syphilis, entirely cleared up the condition and relieved the headache. With reference to the explanation of the ill-effects of salvarsan on the various nerves he stated that it had been shown that in such cases an edema occurs in the sheath of the nerve, the resulting pressure bringing about the destruction of the nerve. In this connection he reported a case.

THE UPRIGHT POSITION IN ETHER OPERATIONS UPON THE NOSE, THROAT, AND OTHER PORTIONS OF THE HEAD, WITH DEMONSTRATION OF A NEW METHOD FOR ATTAINING THE POSITION WITH EXPEDITION, EASE AND SAFETY.

DR. THOMAS R. FRENCH, of Brooklyn, said that the almost universal fear among surgeons of performing operations upon the nose and throat while the patient is in the upright position had no real foundation in fact. The reasons for preferring the upright position in operating under ether narcosis were many but the principal ones named were: First, better operative work can be done because the surgeon is accustomed to viewing the parts in that position in everyday practice; second, because the field of operation, in the mouth and fauces especially, is better displayed; this largely because the gravity of the soft parts carries the tongue out of the way to a greater degree than in other positions; third, that there is less hemorrhage while the patient is in the upright position; and fourth, that less ether is required after the patient's body has attained the upright position. A new and easy method was demonstrated which has been evolved from that presented to the Association by the writer twelve years ago. With the new method the patient is anesthetized upon, and strapped to a table, and after the stage of excitement has passed the table top is converted into a chair, and by wheel action the body is brought to the sitting posture. The back of the chair can be lengthened or shortened to fit the back of each patient and also to adjust the head in the headrest for the proper administration of the anesthetic and the desired display of the field of operation. If the surgeon wishes to operate while standing the chair part of the mechanism can be raised. If, however, the surgeon desires to operate while sitting, the chair can be lowered to the required level. If trouble arises in respiration the chair can be quickly converted into a table top in the Trendelenburg position.

DISCUSSION.

DR. CASSELBERRY, of Chicago, said that years ago he began to use the upright position in operations upon the nose and throat, but that the objection displayed toward it in the hospitals with which he was connected had obliged him to perform such operations with the patients in the reclining position, but that he was very much in favor of the upright position and intended getting one of Dr. French's tables and making another attempt.

DR. CHARLES W. RICHARDSON, of Washington, D. C., said that he had had to give up the upright position in hospital work for the same reason as that given by Dr. Casselberry. He believed in the upright position however, stating that the vision was better, the light could be thrown more accurately and that much less blood got into the larynx; the latter point is one which causes great annoyance when operating on patients in the recumbent position. He thoroughly endorsed the author's statements and believed that this table would solve the problem.

DR. MOSHER, of Boston, said that in his city it was not hard to get the hospital internes and attendants to do as requested, and that he was in the habit of operating on nose and throat conditions with the patient in the upright position. This position has the advantage that the operator is able to change the position of the patient at any moment and quickly, not only the head to relieve bleeding, but that it was also possible to bring the whole body forward from the hips, and that according to Dr. French's demonstration he questioned if this were possible with this table, and if not that he would still prefer to use their own more primitive equipment of an ordinary chair.

MALIGNANT DISEASE OF THE UPPER AIR PASSAGES, WITH NOTES UPON TWO CASES OF EPITHELIOMA.

DR. J. PRICE-BROWN, of Toronto, presented this report upon ten cases of malignant diseases occurring in the nose, nasopharynx, oropharynx and larynx in his practice Seven of them were sarcoma of the nose; one, sarcoma of the larynx; one, epithelioma of the pharynx; and one, epithelioma of the inner ala of the nose. These cases had all been treated by internal methods, chiefly by the oft repeated use of the electro-cautery, in which on each occasion the parts being anesthetized by the free use of cocaine and adrenalin, as much of the malignant growth was destroyed as possible. In these cases, after cure seemed to be obtained, the patients were all kept under observation for a prolonged period of time; and whenever there was recurrence of the malignant growth it was at once attacked again in like manner, the new vegetations being destroyed. The results were eminently satisfactory, only one of the seven cases of sarcoma of the nose ending fatally. Two of these cases were still under observation. In the case of sarcoma of the larynx the fight between the growth and the cautery was still going on, after a fifteen months' siege; the aid of radium being added latterly. The prognosis was doubtful. In the case of epithelioma of the pharynx, six months after the first operation the man was still living although the end was hopeless. In the case of epithelioma of the inner side of the ala of the nose, the author was hopeful of an excellent result from the combined use of the electro-cautery and radium; although the case was too recent to arrive at any positive conclusion at this time.

DISCUSSION.

DR. COAKLEY, of New York City, said that sarcomata varied greatly in malignancy and were difficult of diagnosis. He referred to a recent case in which this difficulty in diagnosis was met with, the pathologist returning the report from a gland which had been removed, of tuberculosis; within a few weeks at autopsy the pathologist made a diagnosis of sarcoma. He stated that sarcoma was more amenable to treatment than was epithelioma. He considered radium of use only in superficial skin epitheliomata.

DR. ROE, of Rochester, N. Y., considered the use of the galvano-cautery in the removal of malignant growths to be ideal since this destroys the malignant tissue and seals up the remaining tissue thereby preventing the spread of the infection. He reported two cases of epithelioma of the tonsil in which the growth was removed by this method. In one case the patient remained well for a year but eventually succumbed to the disease; in the other case the patient remained well for nine months.

DR. HARMON SMITH, of New York City, stated that it was his opinion that many times the supposed beneficial result obtained in the treatment of sarcoma was due to a mistake on the part of the

pathologist in examination of small pieces of tissue from the lymphoid region. He stated that syphilitic tumors very closely resemble sarcoma and cites cases in which such growths have recovered under syphilitic treatment.

Dr. Delavan, of New York City, mentioned a case of angiosarcoma of the nose operated upon frequently but each operation followed by a recurrence; this patient was finally treated by Coley's toxins and made an absolute recovery and is alive today twenty years since the original trouble. He had never seen any good results follow the use of radium in epithelioma.

Report of a Case of Bronchoscopy for Multiple Foreign Bodies (Almond Shell and Pulp) in a Child Two Years of Age, with Some Observations upon Bronchoscopy in Infants and Young People.

Dr. John R. Winslow, of Baltimore, cited the following case: Iona B., age 2, was playing upon the floor when her mother's attention was attracted by her crying, and she noticed that the child was blue in the face and breathing badly. She immediately held the child up by the feet, slapped her back, and running her finger down the throat removed a large amount of almond shell and pulp; this resulted in greatly improved respiratior and the mother supposed that the nut had all been removed. Since this time, however, the child had at times exhibited embarrassed respiration and occasionally cyanosis. Examination showed the respiratory movements much shallower on the left side and the respiratory sounds lost below the second rib; no rales present. Temperature 98°, pulse 118, respirations 28. The patient was admitted to the University Hospital and examined with Jackson's direct speculum under cocaine; by this means it was demonstrated that nothing was present in the larynx, and that the smallest bronchoscope then available (7 mm.) would not pass through the subglottic space. Tracheotomy, followed immediately by lower bronchoscopy with a 7 mm. Jackson tube, was carried out on the following day. In this way a considerable amount of milky pulp was removed from the left lower lobe bronchus; the upper lobe bronchus could not be entered. No shell was found. Owing to the patient's bad condition further examination had to be discontinued after about thirty minutes. From the following day the patient developed a broncho-pneumonia lasting eight days. On the thirteenth day the patient was discharged from the hospital in an enfeebled but otherwise normal condition, and returned to her home and the care of her physician, Dr. F. G. Wright. She remained in good condition for about a month, and then, in consequence of an epidemic influenza, again developed pneumonia. Following this the wound opened spontaneously and she coughed up an oval piece of almond kernel about 6 x 3 mm. She then slowly but fully recovered. The essayist called attention to the difficulties of bronchoscopy in very young children, owing to the small size of the respiratory passages, the difficulties of instrumental manipulation, and the nature of the objects usually encountered. He discussed the best methods of procedure in such cases. While admitting the obvious advantages of upper bronchoscopy (without tracheotomy) he noted its disadvantages. A study of cases reported showed that while upper bronchoscopy had been attempted many times for the removal of foreign bodies in infants, in a large percentage, if not the majority of them, tracheotomy had become ultimately necessary for successful removal. Reference was made to a recent article by G. Killian in which he called attention to the frequency with which tracheotomy or intubation becomes necessary after upper bronchoscopy, even when successful. This he attributes to an edema of the subglottic space caused by traumatism. In some of the cases recorded he showed that the bronchoscopic tube used was too large for the subglottic space. Under these circumstances, while admitting that the selection of method must be individual in every case, the author concluded that in the majority of cases in young children, lower bronchoscopy was preferable to upper, in that it was he cited numerous authorities.

Discussion.

Dr. Jackson of Pittsburgh stated that if an operator wished to use a 7 mm. tube internal diameter, the outside being 8 mm., it would be necessary in any child under one year of age to do a tracheotomy, since 5 mm. was the limit through the larynx of a child of that age; but that if one can work through a smaller tube, say 4 to 5 mm., tracheotomy would be absolutley unnecessary for any purpose other than dyspnœa: the use of such a small tube however is dependent upon the operator's facility in this line to a great extent. He stated that he had recently obviated the after tracheotomy in four cases by putting down a bronchoscope and pumping out a thick, viscid secretion which accumulates within twenty-four hours after bronchoscopy in children, and recommended that others give this method a trial before resorting to tracheotomy. He considered nut kernels to be the most fatal of all foreign bodies which can enter the lung, frequently being the cause of death months after the original entrance. He also laid stress upon the fact that in many instances foreign bodies had gained entrance into a child's lung by the aid of the parent's finger endeavoring to remove the foreign body, and condemned this practice most heartily and urged that every means be used to teach the laity that this was an extremely serious matter, and that it should never be resorted to, as without it the child would be much more apt to spit up the foreign body.

Dr. B. R. Shurly, of Detroit, referred to a recent case under his observation in which upper bronchoscopy was unsuccessful in removing the foreign body. He considered the results much more fatal in children under three years of age than in those over this age. He stated that the subglottic edema was certainly the result of trauma, from the use in many instances of too large tubes. Attention was called to the fact that nationality plays a part in the diameter of a child's larynx, the Italians having a particularly small one.

Traumatic Paralysis of the Right Recurrent Laryngeal Nerve.

Dr. D. Bryson Delavan, of New York City, reported two cases, the following being the history of one of them: Elizabeth X., aged 23; otherwise healthy and with no relevant history; speaks in a hoarse tone of voice of peculiar quality; this is worse in bad weather, when she is fatigued or when she has a cold. State that when 12 year old and fairly well grown she tripped in crossing a railway track and fell, striking her throat upon the inner edge of the opposite rail. The fall was hard and

the shock severe. Upon striking the rail she uttered a loud cry but upon attempting to speak immediately thereafter found that she had lost her voice. She was treated at various times and places but principally at the Massachusetts General Hospital. Applications were made to her throat and the use of electricity was employed for a considerable length of time. No good results followed any attempts at relieving her. Eleven years after the accident she was examined by the writer. She appeared normally developed, well nourished and healthy. She occupied the position of waitress in a summer hotel, and filled her place satisfactorily in every respect. Laryngoscopic examination showed the right side of the larynx fixed, with the vocal band drawn a little to one side of the median line. The anteroposterior length of the right vocal band was distinctly shortened to the extent of one-third. Fixation was absolute. The cord was slightly hyperemia and the whole of that side of the larynx appeared contracted. The left side of the larynx was in every respect normal, both as to appearance and physiological function. It appeared evident that at the time of the injury to the larynx the right recurrent laryngeal nerve had been completely paralyzed. The prognosis in this case as to recovery is absolutely bad. There is no reason, however, why the patient should not enter upon any of the ordinary avocations of life with success; the great point being to avoid all sources of irritation to the larynx, and in case of the occurrence of a laryngitis of the simplest type, to resort to proper measures for its relief at the earliest possible moment, as there have been occasions during the existence of catarrhal states of the throat when slight dyspnœa has been present. The patient was advised of the importance of avoiding laryngitis and it was suggested to her that she report back to Massachusetts General Hospital for periodical examinations of the throat at intervals of not more than a year in order that the history of the case might be kept in mind and that she herself might be under the supervision of some competent specialist. With a little care in the above particulars there is no apparent reason why this patient should not live out the full term of a useful existence.

DISCUSSION.

DR. COAKLEY, of New York City, stated that it had been his privilege to see three cases of traumatic lesion of the recurrent laryngeal nerve; in one the nerve was injured during thyroidectomy; in another the paralysis resulted from the removal of a malignant growth; in another it was the result of a gunshot injury. The prognosis was invariably bad, not one patient recovering the function of the cord.

DR. FREER, of Chicago, did not agree that the prognosis was always bad since he recalled a case of paralysis resulting from exposure of the nerve during thyroidectomy which recovered the function of the cord some weeks later.

DR. PIERCE, of Chicago, reported a similar case of paralysis following thyroidectomy, with practically a normal condition at the end of eighteen months: he considered that the nerve had probably been pinched in forceps during the operation.

DR. EMIL MAYER, of New York City, suggested that it might be well for all surgeons to make a habit of having the throat examined by a laryngologist before attempting the various operations on the neck, for the excision of glands, etc. He believed that in many cases there might be found disease of the recurrent laryngeal nerve.

DR. ROE, of Rochester, N. Y., referred to a case of traumatic paralysis of the left side of the larynx from a stabwound; there was no restoration of function on the injured side but the muscles over-developed on the opposite side, thus compensating for the deformity.

DR. RICE, of New York City, said it was remarkable how good the voice sometimes is in spite of a one-sided paralysis, and cited the case of a singer with this condition. He stated that he had found that the voice was better in the cases of short vocal cords than in long ones.

THE QUESTION OF POST-OPERATIVE NASAL PACKING IN THE LIGHT OF ADDITIONAL EXPERIENCE WITH THE AUTHOR'S RUBBER TAMPON.

DR. W. E. CASSELBERRY, of Chicago, called attention to the fact that a posterior pack of some sort must at times be inserted in order to control a dangerous degree of post-operative hemorrhage, especially that liable to ensue some hours after the severing of a principal branch of the post-nasal artery, as in turbinectomy and the spheno-ethmoid operation. As these are the operations and this the pathway for the intransal surgical drainage of the spheno-postethmoid group of accessory sinuses, the severing in trunk or branch of this particular artery now so often confronts us that a satisfactory safeguard against subsequent hemorrhage has a very practical bearing on the extent to which this much needed surgical treatment is likely to be utilized. The fact that plugging the posterior naris will succeed in stopping such a hemorrhage even though a well placed anterior pack has failed, is due to the ring-like conformation of the choana against the bony edge of which the trunk of the post-nasal artery, as it emerges from the spheno-palatine foramen, together with its principal branches, is necessarily compressed by any plug which fits snugly into the choana or is held against it by forward traction. A preventive tampon therefore, competent to prevent hemorrhage at this site, must possess a post-nasal feature, an advantage imparted to the new combination nasal and post-nasal aseptic rubber tampon shown in 1909, by a bulbous expansion of its distal end which has not once failed to fulfill its purpose, having been utilized by the author as a primary dressing at the close of all operations reputed to be liable to secondary hemorrhage, numbering some 175 private cases, and having enabled him, without fear of hemorrhage, to extend the benefit of nasal surgery to many more persons in need of it than would have accepted an exclusively hospital procedure. He states that the antipathy to nasal packing in general and the advice of authors against post-operative nasal packing in particular, are based upon the old-time necessarily septic tampon of uncovered gauze which, it is agreed, should be quite abandoned; but he insists that these negative views are inapplicable to the non-absorbent smooth surfaced aseptic rubber tampon, for in not a single instance of his series which embraced many cases of spheno-ethmoid and other sinus suppurations, did it induce or contribute to infection of the ear, meninges, sinuses or any septic conditions, and if its general use as a preventive of hemorrhage be not restricted by prejudice it will be instrumental in multiplying the beneficiaries of nasal surgery. But why, it may be asked, does not the mere obstruction

to drainage by this aseptic pack promote absorption of pus even though the rubber tampon cannot harbor in itself the organisms of infection? Principally because of the brevity of time during which the obstruction endures. In all cases the tampon has been withdrawn in from 15 to 18 hours and in not over five per cent. has it been necessary to reinsert it for another period of equal brevity. Is it always effective? In order to obviate the only uncertain element the author has recently added an anchoring cord, within the rubber, to the post-nasal bulb, by which any shifting of it away from the vessels to be compressed in the choana may be prevented. A single strong black silk thread is tied to the first few inches of gauze, enfolded into a small knot, just as it emerges from the distal end of the packer, before the rubber is slipped over it. The string therefore during the insertion of the tampon leads forward along the outside of the packer but inside of the rubber case, being led taut till completion of the gauze packing by the same hand that holds the packer, when by gently pulling the string and affixing it to the front end of the pack by a few turns around a fold of gauze or cotton, the post-nasal bulb is drawn snugly into the choana and held against its ring-like bony edge in the same manner and with equal efficiency as an ordinary post-nasal plug but with the advantage that both gauze and string are incased in rubber.

DISCUSSION.

Dr. Bliss, of Philadelphia, pronounced it really surprising how quickly wounds of the mucous membrane heal under pressure by clean rubber, and referred to a method exploited by him for pressure against the septum, in which he took a drainage tube in proportion to the size of the nostril and cutting each end packed it with gauze and placed it in position to act as a splint; this could be left in for many days, and the packing could be removed and replaced at will. From this experience he believed Dr. Casselberry's dressing would be as nearly aseptic as any could be in the nose.

Dr. Ingals, of Chicago, said that he had utilized the author's method of packing many times but never had used the thread for anchoring the bulb. He had never had any bleeding since using this method and he considered it most satisfactory. There had at times been complaint of pain on its removal but if this were done slowly and the inside of the rubber were irrigated to moisten it the pain would be greatly reduced.

Dr. Price-Brown, of Toronto, said he had for many years made use of rubber packing in operations in the anterior portion of the nasal cavity, using soft pure rubber cut to suit the case, and in no case had he had hemorrhage of alarming character. He had not, however, used this packing for the post-nasal portion and believed Dr. Casselberry's packing would be most efficient.

Dr. Casselberry, of Chicago, said, in reference to the pain on removal of the packing, that this could be obviated by spraying a little cocain outside the rubber and then waiting five minutes before attempting the removal of the packing.

THE ANATOMY OF DEFLECTIONS OF THE NASAL SEPTUM.

Dr. Otto T. Freer, of Chicago, gave an account of the anatomy of the deflected septum as revealed to him by his submucous resections by the open method. It is his opinion that the anatomical conditions alone should show the way to correct deflections and that these conditions prove that crude preconceptions as to their nature led to some of the imperfect and harmful operative methods now in use. He divided deflections in the cutomary way into traumatic ones and those from growth. The latter are by far the commonest and their chief form is the crista lateralis or ascending crest deflection, or horizontal angle of deflection, as he calls it, which follows the anterior border of the vomer upward and backward, creating the well-known crest or ledge so often sawed away. These deflections are due to vertical growth pressure upon the septum, which grows too fast for its frame, and so has to bend out of the median plans. While the pressure creates a bending out of the vomer, prependicular plate and cartilage to form a horizontal angle of deflection, it also causes the cartilage to override the vomer, not in the form of a dislocation of the cartilage from its vomeral groove, as has been supposed, but by the cartilage, in its downward travel, carrying its entire articulation with the vomer with it so that the bony face of the articulation instead of looking upward, as it normally does, is found upon the side of the vomer slanting into the naris of the convexity. The ledge or crest found in these deflections in the naris of the convexity is that flange of the vomeral groove which in this displacement comes lowermost and which coincides with the downward displaced posterior inferior border of the septal cartilage, hypertrophied into the usual cartilaginous crest. Back of the cartilage the vomer and perpendicular plate join to form a bony V or angle, which permits the cartilaginous strip in their articulation to escape upon the convex side of the angle, forming there a continuation of the cartilaginous crest backward. In less frequent, but still common, cases, the vomero-cartilaginous articulation instead of tilting into the naris of the convexity, slants into that of the concavity, so that the cartilage, in order to follow it, bends horizontally upon itself. In these cases the operator encounters rising from the nasal floor a high, bony, vomeral wall right under the mucosa periosteum in the naris of the convexity, and on the other side of the wall finds the cartilage descending into the naris of the concavity, while in the common type of crest deflection he comes first upon cartilage. The deflections of the anterior inferior free portion of the septal cartilage and their influence in producing a slit-shaped nostril are also described. Rounded vertical angles in the cartilage are attributed to horizontal growth pressure between the sphenoid body and nasal bones. The combination of such a vertical angle with a crest deflection makes a double-angled deflection. A horizontally sigmoid deflection results when the concavities of these two deflections alternate. Surgically important is the crossing of the periosteum and perichondrium in the crest deflection across the septum from naris to naris in the vomero-cartilaginous articulation. Traumatic deflections are usually purely cartilaginous and in their commonest form create a vertical, sharp angled deflection far forward in the naris, often in the nasal vestibule. The fragments of the old fracture are usually found united, so that each is contained in its own perichondrial envelope and a fibrous bridge joins the mucous coverings of both nares through the fissure between the fragments. In numerous instances the fragments overlap and in these cases the angle of deflection is replaced by a greater

thickening of the septum, especially in growing persons, where the fragments continue to grow past each other. Because of these complicated fibrous envelopes, which interrupt the denudation of the cartilage in the submucous resection, perforations in traumatic deflections are common unless keen dissection supplant the attempt to detach the coverings with a blunt elevator. Excellent explanatory illustrations accompany the article

DISCUSSION.

DR. COAKLEY, of New York City, agreed with the author in the difficulty frequently met with in these cases of deflected septum, it requiring much careful and painstaking work to obviate the possibility of a perforation.

DR. B. R. SHURLY, of Detroit, reported a recent case illustrating the difficulties encountered in this region. This case had been operated on elsewhere for the relief of a deflection of the anterior portion of the septal cartilage, a submucous resection being done; a portion of the cartilage was left, however, the operator stating that if it were removed the nose would sag. There was a perforation the size of a thumb-nail. When the patient came to Dr. Shurly there was a complaint of a whistling sound through this perforation which was most annoying; he considered it possible to relieve both the existence of the perforation and to remove the remaining tip of cartilage with one operation. Accordingly he removed the piece of cartilage, dissected the mucous membrane free around the edge of the perforation, making a slit large enough to allow of the introduction of a piece of the fresh cartilage to cover the perforation, inserted such a piece of cartilage through this slit, and then allowed the mucous membrane to overlap the cartilage and hold it in place. The edges of the cartilage were freshed so that the perforation would heal over by granulation, and a rubber splint was carefully adjusted on either side and the nose packed carefully. The result obtained was most satisfactory in every particular.

DR. INGALS, of Chicago, said that it had been his view for a number of years that deflections of the nasal septum were due to the two causes named by the author—growth and trauma. He considered Dr. Freer's paper extremely unique in its descriptions and of great value to the profession.

THE MIDDLE TURBINATED BODY: SOME INDICATIONS FOR ITS REMOVAL.

DR. W. SCOTT RENNER, of Buffalo, stated that enlargement of the middle turbinated bone may be responsible for a definite train of symptoms where no other systemic cause for their development can be ascertained. In 300 such cases treated during the past six years, frontal headache and eyestrain occurred most frequently; paroxysmal sneezing next; and third in order, cases of acute frontal sinus and ethmoid trouble. Other symptoms were: reflex cough; at times asthma; vertigo; and twitching and spasm of the ocular muscles. The removal of the middle turbinated bone is indicated for the relief of these symptoms and for the proper ventilation and drainage of the nasal accessory sinuses. Attention was invited to the fact that this does not refer to cases of chronic sinusitis and nasal polypi in which the enlarged turbinate requires removal as a part of more radical operations. Deflections of the upper portion of the nasal septum may require correction before or after the removal of the middle turbinated body.

DISCUSSION.

DR. SLUDER, of St. Louis, disagreed with the author in his philosophy regarding a condition of pressure contact from the middle turbinated body being the cause of the eye symptoms mentioned, and that these symptoms would be removed by the removal of the middle turbinate. He considered these symptoms to be caused by closure of the frontal sinus in which the middle turbinate might or might not have a part, in other words, due to the creation of a vacuum within the frontal sinus, and in substantiation of this theory stated that in such cases he had opened the sinus relieving the vacuum and not removed the middle turbinate which appeared to be causing pressure, and the symptoms had been relieved.

DR. PRICE-BROWN, of Toronto, reported a case of intense facial neuralgia, the pain extending up the side of the nose, around the temporal bone and down the cheek bone, which could not be relieved by any medicinal means. He found, on careful examination, a certain amount of pressure being exerted by the middle turbinate, and on the removal of this bone the pain ceased.

DR. CHARLES W. RICHARDSON, of Washington, D. C., took exception to the reference that attacks of asthma and paroxysmal sneezing are at times due to pressure from the middle turbinate. He acknowledged that in such cases it was not unusual to find the middle turbinal congested, but he believed that constitutional disturbances were really responsible for the conditions in the nasal chambers, and he thought it would be well for men dealing with these types of nasal cases to look a little outside the nasel chambers for the cause, as this would in many instances be found in the constitutional condition.

VINCENT'S ANGINA: ITS FREQUENCY AND THE IMPORTANCE OF ITS DIAGNOSIS. WITH REPORTS OF TWO FATAL CASES.

DR. THOMAS H. HALSTEAD, of Syracuse, stated that Vincent's angina is the manifestation in the throat and upper respiratory tract of the infective activity of the fusiform bacillus associated with spirochetes and spirilla, these latter being probably but evolutionary forms of the former. These same organisms produce disease in all parts of the body, a pseudo-membrane being produced on mucous membranes, and abscesses in the deeper parts. Hospital gangrene and noma are due to these organisms, while many cases of phagedenic ulcer of the penis and genitalia, abscesses of the lung and spleen, have been reported, and recently a case of appendicitis followed by general pyemia with multiple abscesses in all parts of the body, due to the fusiform bacillus, has been reported by Tunicliffe. Many cases of bronchitis, laryngitis, broncho-pneumonia, the false membrane being the local lesion; a few cases of mastoiditis, the fusiform bacillus being the pathogenic organism in all of them, are found in the recent literature. Vincent's angina, strictly speaking, is the disease as seen in the mouth, fauces, pharynx, and larynx. There are two distinct clinical types—one resembling diphtheria so closely that the best observers are likely to err in diagnosis, while the other type simulates so nearly the throat lesions of syphilis, the mucous patch, the tertiary ulcer and even the initial sore, that unless one is

careful he is likely to mistake an ulcer of Vincent's angina for a syphilitc ulcer. A positive diagnosis is easily made by bacteriologic examination of a smear taken from a gentle curettement, or a swab, preferably the former, of the under surface of the pseudo-membrane, or of the ulcerated surface itself. It may not be found if the smear is from the outer surface of the pseudo-membrane. The organisms, which are anærobic, do not grow on the ordinary culture media, and hence are always overlooked by the bacteriologist in examining cultures for diphtheria, which accounts for the supposed infrequency of the disease. The disease is altogether more frequent than has been suspected. Statistics are given to prove this statement. It is probable that 20 to 25 per cent. of cases, diagnosed clinically as diphtheria and reported by the bacteriologist as being simply negative, are Vincent's angina, but are not discovered by the bacteriologist as he examines only the culture and not the smear. The writer found that of the last 2500 cases of ear, nose and throat disease seen in his private practice, 20, or 1 in 125 were Vincent's angina. The writer reported two fatal cases. In one case the disease occurred in a woman eight months pregnant. The membrane, resembling that of diphtheria, was most profuse and was present not only in the mouth, and throat, but also in the vagina. It persisted for two months in the mouth and throat despite treatment. A very foul, feted odor, peculiar saffron color to the skin, great pain in swallowing interfering with nourishment and sleep, low temperature and profound toxemia with great prostration, were the prominent symptoms. The patient died suddenly at the onset of labor. The second case occurred in a young woman, the pseudo-membrane covering the alveolar borders and the buccal mucous membranes, causing such great pain that she could not swallow, refused all food and practically starved. A most profound toxemia and secondary anemia developed, the patient finally succumbing to the disease. The writer derived most satisfaction in the treatment of the mild cases by the use of trichloracetic acid to the ulcerating surface, orthoform relieving the pain, while in many improvement followed only after the diseased teeth and gums were cared for. Tincture of iodine was useful in many cases. General tonic treatment is always necessary. In the severe cases, resembling diphtheria clinically, local treatment is unsatisfactory. No specific treatment has yet been evolved, but it is hoped that an antitoxin or vaccine may be developed, or possibly that salvarsan may prove effective against this spirochete as well as against that of syphilis.

DISCUSSION.

Dr. Coakley, of New York City, reported a case of the deep ulcerative type of Vincent's angina, ending fatally. He also referred to a case of extensive ulceration of the tongue near the anterior portion and a second ulceration at the posterior portion having the clinical appearances of gumma, but giving negative reactions to tests, which was at present under treatment. He found the greatest diculty in getting the deep ulcerative processes to heal until all superficial slough was curetted away.

Dr. Ingals, of Chicago, referred to several cases of Vincent's angina occurring in his practice during the past year, which were extremely stubborn to treatment but which finally got well. He had heard the use of formalin exploited in these cases and intended trying it in the next case coming under his observation.

Dr. B. R. Shurly, of Detroit, emphasized the point that Vincent's angina, like the Klebs-Loeffler bacillus, was a diagnosis by swab and not by culture, and that in the examination of any suspicious case this should be borne in mind by the bacteriologist and the visiting physician, as by the use of the proper methods much time could be saved and many cures effected which otherwise were impossible.

Dr. Sluder, of St. Louis, referred to the use of the anilin dyes, especially methylene blue and methyl violet in the treatment of the ulcerations in cases of Vincent's angina, stating that he had had many successes with their employment. He said this was by no means an original method, although he did not know who originally promulgated the idea.

Dr. Swain, of New Haven, said that the fusiform bacillus found in cases of Vincent's angina was an organism of low resisting power and many remedies have been advocated. He had had success with the use of zinc chloride. He agreed with Dr. Coakley and the author that in cases of deep ulcerations it was necessary to thoroughly clear away the sloughs before making any applications with the hope of success. He referred to an epidemic of Vincent's angina occurring last winter in one of the children's hospitals in New York City where the condition was supposed to have been transferred from individual to individual by means of the common drinking cup; this epidemic was rather unusual as these cases generally are sporadic.

Dr. Theisen, of Albany, added a fatal case to the list of Vincent's angina in which the patient had developed the worst necrotic type with pseudomembranous deposit in both tonsils, soft palate and posterior wall of the pharynx. The odor was so terrible that it was impossible to remain more than a few minutes in the room with the patient. This patient just before his death had multiple hemorrhages from the mucous membrame of mouth and rectum and under his skin; the use of horse serum was ineffective. In this case the fusiform bacillus and the spirillum of Vincent were found in smears from the swab but could not be found in culture. He also referred to a case of Vincent's angina originating from an infection in a carious molar tooth, which was diagnosed originally by him as syphilis but which later proved to be Vincent's angina.

Dr. Wagner, of San Francisco, said that he considered it was better to get some of the serum under the ulcerative area for examination for the bacillus than to rely on swab smears. He called attention to the fact that strong caustics applied to the tonsils often permitted the spirilla to do their morbid work within a short time.

Dr. Pierce, of Chicago, emphasized the point made by the last speaker that it was not wise to rely entirely upon swabs for diagnosis, and agreed with the writer of the paper that curettement was the safest procedure in making an examination for the fusiform bacillus and the spirillum of Vincent, and considered it also well to look for the spirochete of syphilis as well, since he had known of cases diagnosed as Vincent's angina which did not respond favorably to the regular treatment but which cleared up under antisyphilitic treatment. He therefore advocated in all cases where there was a process threatening permanent destruc-

tion and deformity that antisyphilitic treatment be instituted; another point in favor of this method is that large doses of potassium iodide seem to be of some effect in cases of Vincent's angina. His practice, he stated, with regard to the local treatment, was to forcibly rub off as much of the membrane as possible with a swab saturated in hydrogen peroxide, then use formalin solution 1-30, limiting this to the membranous exudate.

DR. COBB, of Boston, stated that Dr. Evelyn Nagle in his laboratory has a slide showing the change from the fusiform bacillus to the spirillum, but that they were waiting for further cases to show this before making it positive. With regard to the spirillum and its differentiation from the organism of syphilis he said the differentiation rested on a distinction of more convolutions and a little different bend in the convolutions on the part of the spirillum, of Vincent, but also that while this spirillum stained with the same stains as the spirochete of syphilis, still there were some stains which it took that the syphilis organism did not take, and on these could be based the diagnosis. He considered that one should be extremely careful in examination of these cases before deciding that the organism of syphilis was present.

DR. INGERSOLL, of Cleveland, referred to some cases in which differentiation was difficult but was made possible by scrapings from the ulceration when a diagnosis by means of culture had been impossible.

COMPLICATIONS OF TONSILLECTOMY.

DR. CHARLES W. RICHARDSON, of Washington, D. C., referred in this paper to the fact that the complications of tonsillectomy have not been reported as they should have been and this accounts, no doubt, for the small number of cases reported in the literature at the present time. He divided the complications into their various classifications. Hemorrhage predominates in the frequency of reported complications. Fifty cases of serious hemorrhage are reported, with nineteen deaths. Two interesting cases of hyperpyrexia are recited—one in the practice of Dr. Wishart and the other in Dr. Richardson's practice. Infarct of the lung is presented, but, because the cases are reported verbally and do not appear in the literature, no use of them is made. General sepsis of a mild type is of frequent occurrence; it is not infrequent in severe form. Several interesting cases of profound sepsis are narrated. The other sections treated of in the paper are: emphysema, infection of the lungs and serous membranes, disturbances in relation to the nervous system, and status lymphaticus. Under the last named Dr. Richardson reports two interesting cases by Drs. Packard and Harris. Under other sections are treated amydalotomy rash, diphtheria, and local disturbances as sequelæ of tonsillar operations. Other interesting exhibitions were given of injuries and reference is made to the rather severe arraignment by Dr. G. Hudson Makuen of injury to the pillars and to the soft palate. Small space is given to the consideration of infection of the ears and cervical glands. In the unclassified list are grouped a number of complications referring particularly te Crockett's statement of twelve deaths having occurred in the suburbs of Boston in the last year and a half. The conclusions of the paper are as follows: "If anything can be gleaned from the reports which I have enumerated above, it would seem to be that tonsillectomy may be at times attended by most serious, even fatal, complications. It behooves us, therefore, to be most careful in our technique and most cautious in our post-operative attention to our patients. Tonsillectomy, therefore, should be considered a major operation and the patient should be prepared and surrounded with all the post-operative attention as in any major operation. With such knowledge, is it proper and wise to suggest this operation, as is so often done by the internist, with insufficient and inaccurate data from a local standpoint, as a prophylactic measure? I believe that this point of view, as an overwhelming demand for the removal of the tonsils, is too often presented to the reluctant patient. I believe that a few general conditions probably have their portal of entry into the general system through the tonsils, but I would demand that, in every individual case, the tonsil be first proved to be guilty before it is sacrificed. One must hold steadfastly in mind the fact when suggesting such a procedure under such conditions that we by this operation are placing the patient in danger of his life—probably a greater danger to his life than the probable remote infection."

DISCUSSION.

DR. WISHART, of Toronto, said that he had heard of no other case excepting that now reported by the author at all like the one reported by him and referred to in this paper. He believed that hemorrhage was not abundant in cases of tonsillectomy unless there is a tearing of considerable muscle around the tonsil; that when one stuck closely to the capsule he got very little hemorrhage. He thoroughly endorsed the view that tonsillectomy is a major and not a minor operation and said that the time had come when this should be definitely established.

DR. BECK, of Chicago, called attention to the operation he was using at present and which was followed by absolutely no hemorrhage. It was the method employed by Dr. Sluder, of lifting out the tonsil and then snaring it off slowly: with this neither traumatism nor hemorrhage follow, for there is no possibility of including the pillars, the uvula, or anything except the tonsil itself. He mentioned a case of abscess of the lung which was considered to be due to enucleation of the tonsil. The speaker then referred to a case of amydalar scarletiform rash admitted to the Cook County Hospital for scarlet fever, the patient became infected with diphtheria and required tracheotomy, and it was later discovered that it had not had scarlet fever at all but that the rash was that sometimes seen following tonsillectomy. He considered that the general practitioner should be made familiar with this condition, and possibly thereby obviate the possibility of their patients becoming infected with a contagious disease in the isolation hospitals.

DR. BRYAN, of Washington, D. C., spoke very strongly on the subject of this paper, stating that it was his opinion that the public should be educated to regard the operation of tonsillectomy not as a trivial matter but as one of equal seriousness with other major operations, and he considered this but rational in view of the many complications following its performance, many of which were most serious. Furthermore he contended that only a qualified and properly equipped operator should perform this operation, and that it should by no means be entrusted to the hands of a tyro.

DR. FREER, of Chicago, gave as his opinion that

the tearing out of the tonsil by blunt instruments or blunt force was responsible for much of the hemorrhage and sepsis following tonsillectomy, and that he most heartily endorsed the use of a sharp knife for excision of the tonsil, believing that this glandular tissue should be treated in the same way that a surgeon would treat a bubo of the groin. Following the performance of the operation by this method he had had absolute satisfaction in hundreds of cases, without alarming hemorrhage, sepsis or undue reaction.

Dr. Delavan, of New York City, called attention to the acknowledgment on the part of a pediatrist in his city that he had operated in 800 cases for removal of the tonsil, and that he always excised a swollen tonsil in a child. Dr. Delavan condemned this practice absolutely, first with regard to the person operating because he was not a regularly experienced throat man and therefore properly equipped for all emergencies, and second with regard to the attitude of always removing a swollen tonsil in a child, which showed that the practitioner in question was not familiar with the function of this organ nor aware of the seriousness at times of removing it, especially when the throat is in a septic condition.

Dr. Casselberry, of Chicago, agreed with the last speaker in that few general practitioners or pediatrists were properly equipped with means of controlling hemorrhage to be considered qualified to perform the operation of tonsillectomy. He acknowledged that in most exceptional cases, such as the case of a hemophilic child or when the ascending pharyngeal artery was severed due to an anomalous position of this vessel, it might be impossible even with the best equipment to stop the hemorrhage except by the use of a hemostat. He considered that it was the laryngologist's duty to protect himself against the accidents following tonsillectomy by being always on the lookout for the all too frequent emergencies, and having always at hand instruments and means for the control of unexpected accidents.

Dr. Ballenger, of Chicago, considered that the paper by Dr. Richardson presented the condition of affairs in a most alarming way, referable to the technique of former days rather than to the improved and careful technique used at the present time. He did not agree with Dr. Sluder, although commending his method, that severe hemorrhage did not follow it just as surely as it followed other methods. He considered the safest removal of the tonsils was first by partial dissection, and then the use of the snare, although even this method had been followed by hemorrhage. He mentioned a case in which following a tonsillectomy he had the misfortune to have a general septicemia develop which laid the patient up for six months, although he finally recovered. He could not explain why hemorrhage did occur in the use of the Sluder method, except at the time he used this method he used ether anesthesia, and he had concluded that the hemorrhages which resulted were due to the high blood pressure caused by the anesthetic rather than by the technique of the operation. He endorsed what previous discussors had said in regard to the importance of warning the inexperienced and illy equipped man from undertaking the operation of tonsillectomy.

Dr. Roe, of Rochester, N. Y., called attention to the mutilation of the throat resulting from tonsillectomy, and said that he had seen two cases of complete adhesion of the soft palate to the pharynx, the soft palate having been removed instead of the tonsil. He cited one fatal case of a hemophilic patient from whom he removed the tonsils; there was no immediate hemorrhage, but later a continuous oozing took place, which nothing could stop.

Dr. Price-Brown, of Toronto, sounded a warning against operations on the tonsils in patients suffering from chronic rheumatism, and reported an illustrative case in which following tonsillectomy the patient began to bleed and it required heroic measures to control the hemorrhage, and it was several weeks before the patient rallied from the shock. He considered that the arterial sclerosis existing was the cause of this hemorrhage.

Dr. Winslow, of Baltimore, related his method of procedure to ward against hemorrhage in cases of tonsillectomy, saying that this was the method adopted throughout the hospital with which he was connected, namely, the ligation of every bleeding vessel and every bleeding piece of muscle at the primary operation, by this means making it possible always to return the patient to bed perfectly dry and with no greater fear of subsequent hemorrhage following a tonsillectomy than following any major abdominal operation. It was his opinion that sepsis seldom occurred unless there had been unnecessary injury to the tissues, and for this reason advocated the employment of a method requiring the least possible amount of injury to tissues. He stated that he was frequently bothered with a peculiar condition after a tonsillectomy, the patient complaining of a sensation of dryness in the throat for which the operator could not account and which he could not relieve, although this sometimes disappeared in time, while in other cases it persisted.

Dr. Sluder, of St. Louis, in regard to the method of technique called by his name, called attention to be that recommended by him. He himself does dull blade and guillotine for this purpose, whereas he was sorry to say and unable to prevent, the instrument maker persisted in making a sharp blade to the instrument on the market sold as pretending tobe that recommended by him. He himself does not use that instrument, but a modification of it. He stated that in 300 cases of children varying from 15 to 2½ years he had measured the amount of blood lost by this technique, and the average loss of blood was 70 cc. after removal of both tonsils and adenoids. At the St. Louis Children's Hospital, where they have about ten children every Friday for tonsil operations, it is routine practice that a blood test be made beforehand to ascertain the time of clotting; the puncture is made at the same point in the lobe of the ear and by the same instrument, and the same means of computing the clot are used, and by these means not only is there made an estimation of the amount of blood which will exude from a like point from the same instrument, but also there is an estimation of the resilience of the vessels of the particular individual. He never accepts a child for operation with a clotting time beyond a minute and a half. He referred to such a case upon which he refused to operate: the child was taken to another laryngologist who promptly removed the tonsils, and the patient almost bled to death. No child is accepted for operation with a temperature of more than 99.2°.

Dr. Wagner, of San Francisco reported a case operated on some two years after an attack of diphtheria for the removal of the tonsils. A bacteriological examination was carefully made of the secretions of the throat which were found negative; no

examination however was made of the secretions of the nose, and following the tonsillectomy the patient developed a diphtheria sore throat, the infection springing from a little necrosed spot on the middle turbinate which still harbored the diphtheria bacilli. He endorsed Dr. Winslow's method of ligating the vessels and bleeding muscular tissue during tonsillectomy, and said that this was also his practice. He did not believe that the results obtained from estimation of the coagulation time of the blood were always reliable, citing in this connection the case of a boy of 19 in which the estimated time was satisfactory and yet who bled terrifically after operation, the hemorrhage finally being controlled by the use of diphtheria antitoxin.

DR. CHENERY, of Boston, recalled a case of a man of 35 operated on in a hospital and being an alcoholic he was kept under observation for some days before being allowed to return home; twelve hours after his return home he began to bleed, a general practitioner was sent for to stop the bleeding but he simply took a wad of cotton and wiped it round the back of the throat, thus increasing the bleeding; the operator could not be reached and therefore the speaker was called in after several hours and was able after much difficulty to stop the hemorrhage by the application of nitrate of silver to the tonsil. He considered that it was very important to carefully watch patients addicted to the use of alcohol after such operations. He had found the use of rabbits' serum very efficient in the control of hemorrhage.

DR. HARMON SMITH, of New York City, thought that if one considered the vast number of tonsillectomies performed the mortality would be shown to be extremely small, in fact smaller than that following any other operation performed under ether anesthesia. He said that in the laboratory of the Manhattan Eye, Ear, Nose and Throat Hospital they made a preparation of thrombokinase which was very useful for the stoppage of oozing, although not efficient for overcoming violent hemorrhage. This thrombokinase would be furnished to practitioners upon request.

Book Reviews.

First-Year Nursing. By MINNIE GOODNOW, R.N. Illustrated. Philadelphia and London: W. B. Saunders Company. 1912.

This volume, which is uniform with the series of text-books on nursing issued by this publisher, is intended, as its subtitle indicates, "for pupils during their first year of hospital work." It does not aim to displace other books, but is meant particularly to correlate with Miss Aiken's "Primary Studies for Nurses." It applies solely to elementary hospital training. Its arrangement follows essentially that of the first year course outlined by the Training School Committee of the American Hospital Association. Each of the 24 chapters is introduced by an appropriate quotation and concluded by a list of review questions. The illustrations are in the main excellent. The book should take its place among others of service and value to the probationer and to pupil nurses in their early training.

Infantile Paralysis in Massachusetts During 1910. Boston. Wright and Potter Printing Company. 1912.

This volume consists of a series of papers, several of them first printed in this JOURNAL, reprinted from monthly bulletins of the Massachusetts State Board of Health for 1911, dealing with aspects of the epidemic of acute anterior poliomyelitis in this state in 1910, "together with reports of special investigations made in 1911, bearing upon the etiology of the disease and the method of its transmission." Many of these articles have received editorial comment from time to time in the JOURNAL, at their original appearance. The collection makes a monograph of 154 pages, which seems a valuable contribution to the literature of the study of this important disease.

The Healthy Baby. The Care and Feeding of Infants in Sickness and in Health. By ROGER H. DENNETT, M.D., New York: The Macmillan Company. 1912.

Probably few things in the world are more difficult, or on the average less well done, than the bringing up of babies. Few things also are more eloquent testimony to the efficiency of natural processes than the way in which for generations the majority of children have grown up in spite of the care they have received. The fact that the human race exists at all is sufficient evidence of its amazing fitness to do so.

In our race, it seems as though parental instinct had gone more astray than in any other animal species. "The bearing and the rearing of a child" may be "women's wisdom," yet it is astonishing how little sapience some women acquire from the process. The counsel of the average woman who has "borne twelve and raised seven children" is usually even less reliable than the untutored instinct of the new mother. More babies suffer from over-solicitude than from neglect; and it is hard to say which in this respect is worse,—the tradition-bound ignorance of the poor, or the well-meaning fatuity of the well-to-do, whose means are often only an additional engine of harm. There doubtless was a time when to unenlightened, blind solicitude, the race owed the continuance of its existence; under present conditions that solicitude is often an unnecessary and detrimental survival. As a rule, the less sentiment and the more brains put into the raising of a baby, the better.

Dr. Dennett's book is an attempt to supply the knowledge needed for this purpose. It is very sensibly written, and will appeal to the limited class of sensible parents. Best of all, it teaches just the common things that all parents ought to know, though many do not; and it does not trespass on the doctor's domain. The chief disadvantage of such a book is that it seldom reaches those who need it most. That, however, does not prevent the present volume from being among the few good ones of its kind that are extant.

Manual of Physiology for Students and Practitioners. By H. WILLOUGHBY LYLE, B.S., M.D. London, 1912. 747 + xv pp. and 135 figures. Henry Frowde, Oxford University Press.

This small book is a simple and elementary description of physiological processes. In order to present the subject in brief compass the author has omitted much of the reference to apparatus and technical appliances found in larger works, and has confined himself to the essentials. The references to practical applications of physiological knowledge are a valuable feature of the volume.

An Index of Treatment by Various Writers. Edited by ROBERT HUTCHISON, M.D., F.R.C.P., and H. STANSFIELD COLLIER, F.R.C.S. Revised to conform with American usage by Warren Coleman, M.D. Sixth edition. Revised and enlarged. New York: William Wood and Company. 1912.

The appearance of this sixth edition within five years of the original publication is evidence of the popularity which this book has attained. The work was "intended to provide the practitioner with a complete guide to treatment in moderate compass and in a form convenient for reference," and has abundantly succeeded in its purpose. The subjects, which are arranged alphabetically from abortion to yellow-fever, have been contributed by 83 distinguished physicians and surgeons. In this sixth edition all the old articles have been thoroughly revised and several new ones added, including puerperal sepsis, hydro-, photo-, and thermo-therapy, and treatment by carbonic acid snow. An appendix contains a number of prescriptions. The alterations in the American edition consist chiefly in adapting these to the United States Pharmacopeia. The work should continue its popular usefulness.

Digestion and Metabolism. The Physiological and Pathological Chemistry of Nutrition for Students and Physicians. By ALONZO ENGLEBERT TAYLOR, M.D., Rush Professor of Physiological Chemistry, University of Pennsylvania, Philadelphia. Philadelphia and New York: Lea and Febiger. 1912.

In this work the author has freed himself entirely from the custom so generally employed by foreign authors and so slavishly copied by our own, of copious references for each statement made and for one the reviewer does not regret the change. True it gives the book a rather dogmatic tone, but here is the statement; you may take it or leave it as you choose. The diction is convincing; there is no circumlocution; the sentences are short and the author has certainly followed the old rule in rhetoric that one should write so that he who runs may read. This style has somewhat the effect on the reader of a chop sea on the occupant of an open boat and occasional rests are necessary in order to assimilate what is poured out in such abundance. The subject matter is well arranged and well handled with homely illustrations and thoroughly convincing reasons for the conclusions drawn; when the author's views are not in accord with those generally accepted, that fact also is frankly stated. Some of the views of the author are decidedly novel; for instance, on page 137, he states that some of the most distressing cases of hyperchlohydria are those in which the highly acid contents of the stomach are discharged precipitously and quickly into the duodenum with the production of great pain. Again on page 147 he states that the self-digestion of the stomach which is currently assumed to be one stage in the formation of gastric ulcer, may be due to pancreatic trypsin rather than to the gastric pepsin. Now Liwschitz has found, in achylia gastrica, duodenal contents, *i.e.* trypsin very commonly present in the stomach and after the oil breakfast almost invariably present in every normal individual, yet these are not the cases where we find the gastric ulcer. There are surprisingly few errors in the text, but one appears on page 248 where the formula glucose + water = glycogen is given; the intention is plainly to use the — sign rather than the + sign. Again on page 262 the word distoxication is used instead of distoxicated, a change which leaves little sense to the sentence, if read literally.

The discussion of the problems associated with the subject of metabolism of diabetes is a thorough and a fair one but the author is not yet ready to take a definite stand on the relations of the adrenals to glycosuria, while von Noorden in his newest work makes some very positive statements to the effect that the adrenals through their secretion accelerate or incite the production of sugar through the diastatic process, or as Taylor would call it, glycolysis, that is the hydration of glycogen while the internal secretion of the pancreas inhibits it, making the two secretions antagonistic in their action. Again in the discussion of the catabolism of nucleic acid the author gives a remarkably clear demonstration of the inability of the blood serum to vary either through pathological processes or therapeutic measures its solvent power for uric acid so that the long accepted term "uric acid diathesis" has no physico-chemical basis in fact. Uricolysis, the oxidation of uric acid, plays no part according to the author in the catabolism of purins. It would seem that the particular function of this book is to enable the busy practitioner who has little time for extensive reading in this branch of medicine to rapidly and intelligently acquire a knowledge of the faulty metabolism which underlies many pathological processes in the body and thereby be enabled to apply therapeutic measures with much greater certainty of success. The printing is up to the usual standard of this well known firm of publishers.

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TOPICS OF HYGIENE AND DEMOGRAPHY.

THE fifteenth International Congress on Hygiene and Demography concluded its sessions in Washington last week. Of the educational and sociologic value of such a congress, as of any serious aggregation of men from diverse countries, there can be no question. The present congress, attended by nearly 3000 delegates, seems to have been in every way a distinguished success. It remains only to review briefly some of the topics considered, and the conclusions, if any, reached in regard to them.

In the matter of school hygiene, it seemed to be pretty effectively demonstrated, by exhibits and papers, that the percentage of physical defects among pupils is relatively high. Dr. William J. Gallivan, of Boston, reported 65% of our public school children defective.

"The principal defect found among the school children was due to the condition of the teeth. Out of the 118,781 children examined, 51,340 were found to have defective teeth. Enlarged tonsils ranked second in number, 25,121 children thus affected. Only 133 children were found to be affected by tuberculosis."

Dr. Thomas D. Wood, professor of physical education in the Teachers' College of Columbia University, New York, estimates that of the 20,000,000 school children in the entire country, "not less than 15,000,000 or 75% need attention for physical defects which are partly or completely remediable."

"Several million children have two or more handicapping defects; 400,000 have organic heart disease, at least 1,000,000 have or have had tuberculosis, about 1,000,000 have spinal curvature, flat foot or some moderate deformity; over 1,000,000 have defective hearing, about 5,000,000 have defective vision, about 5,000,000 are suffering from malnutrition, over 6,000,000 have inflamed tonsils, adenoids or enlarged cervical glands, over 10,000,000 have defective teeth which are interfering with health; about 100 cities have organizations for the care of health in the schools."

It is to be borne in mind, however, that these figures are not really as gloomy as might appear at first sight. Most of these physical defects, after all, are of a minor nature, and though they ought if possible to be corrected, yet even their persistence in most instances is not going to incapacitate the individual for the struggle of existence. It is a rare adult in whom complete physical examination will not reveal some abnormality or evidence of disease, yet the majority of mankind contrive to meet their environment successfully. The physical defects of school children, like everything else, should be taken seriously, but not too seriously.

On the ever-fertile subject of eugenics there was much discussion before the congress and some disagreement. Dr. Lightner Witmer, of the physical laboratory of the University of Pennsylvania, declared that eugenics as a practical problem is of extremely small interest, and that it is essentially impossible to improve human stock as plants and animals are improved by breeding. Dr. W. M. Hays, assistant secretary of the department of agriculture, however, is an enthusiastic eugenist, and believes the human family can be extensively improved by scientific, selective breeding.

"Genetic knowledge promises to have an important relation to the cost of living and upon the life of the nation. It seems none too much to hope that the science of eugenics will greatly lessen the cost of our eleemosynary institutions, will lead to a better average of efficiency, to the restriction of divorce, to temperance, and to a higher morality. May we not hope that in addition to increasing the average of intelligence, efficiency and happiness, eugenics may lead even to a larger production of geniuses and even to the production of families of special purpose people?"

The fact that doctors disagree is no evidence that neither or either of them is right. Probably the truth lies somewhere between the two views. It seems hardly likely that exactly the same methods can be applied to human as to animal breeding, since a large part of the essence of human value lies in aspects and attributes that

are hardly amenable to scientific handling. At present the most promising field is probably that of negative eugenics,—the prevention of breeding from notoriously bad stocks.

One other topic that seems to deserve comment is that of child hygiene. Dr. Woods Hutchinson of New York electrified the congress by promulgating some paradoxical rules for bringing up children, which amounted in substance to letting children do exactly as they please. This principle he seeks to justify on the basis that children are creatures of instinct, and that since by development of instinct nature has evolved man to his present adult status, the process must still be a good one to follow. We suspect that Dr. Hutchinson does not quite mean all that is implied in his statements. It may be true that man has evolved by obeying instinct, but part of his success has depended on his control of instinct, both for himself and for his children. It does not pay for the individual to repeat all the costly experiments of the race which has reached its position by having made the sacrifice necessary for those experiments and then avoiding them in future. It is man's power consciously to cumulate and coördinate his experience which raises him above the subconscious level of the brutes.

The sixteenth International Congress of Hygiene and Demography will be held in Moscow, Russia, in 1915.

THREE IMPORTANT MEDICAL CONGRESSES.

Following close on the Congress of Hygiene and Demography, three other important medical gatherings are in session during this current week. First of these is the Association of Military Surgeons of the United States, which is holding its annual meeting at Baltimore from Oct. 1 to 5, under the presidency of Dr. Charles P. Wertenbaker, of the United States Public Health Service.

The second organization is the American Association for the Study and Prevention of Infant Mortality, which holds its third annual meeting from Wednesday to Saturday of this week, Oct. 2 to 5, at Cleveland, Ohio. The program includes sessions arranged by chairmen of standing or special committees, and popular meetings, which are to be addressed by distinguished specialists from this country and from abroad. The afternoon of Wednesday was occupied with general and preliminary sessions. Thursday morning is the meeting of the section on birth registration, at which Dr. William H. Davis, registrar of vital statistics, Boston, presented a paper on "The Size of Families in Relation to Nationality, Occupation, and Economic Conditions." On Thursday afternoon are the section meetings on eugenics, on housing in relation to infant mortality, and on nursing and social work. Under the section on eugenics is to be presented a paper by Dr. J. E. Wallace Wallin, from the psychologic clinic of the University of Pittsburgh, on "The Euthenic and Eugenic Aspects of Infant and Child Orthogenesis." On Thursday evening there is to be a general session, with an address by Dr. Jacques Bertillon, chief of the bureau of municipal statistics, Paris. Friday morning, Oct. 4, is the session of the section on midwifery, with a leading paper by Dr. James Lincoln Huntington, of Boston, and of the section on progress in the work of preventing municipal infant mortality. Friday afternoon is the session of the section on continuation schools of home making in the educational prevention of infant mortality. At the closing general session on Friday evening will be an address by the incoming president, Dr. L. Emmett Holt, of New York, on "The Importance of Hospitals for Infants and Their Part in the Prevention of Infant Mortality." Important exhibits will be shown from the Congress of Hygiene and Demography.

The third organization meeting this week is the National Association for the Study of Pellagra, which, in response to invitations from the State Medical Association and the State Board of Health of South Carolina, is holding its second triennial meeting in Columbia, S. C., on Thursday and Friday of this week, Oct. 3 and 4. It is expected that several foreign governments and medical societies will be represented at this conference, and the co-operation of officers of the government medical services, state boards of health, and state hospitals for the insane is especially solicited. A series of 42 papers has been arranged by title for the several sessions. In addition, 30 other papers have been promised but the subjects not yet announced, and other papers are expected from authorities in England, Italy, France, Austria, Spain, Roumania, Algiers, Egypt, Philippine Islands, and the Bahamas. Dr. Herman M. Adler, of the psychopathic department of the state hospital, Boston, will describe "The Experimental Production of Lesions Resembling Pellagra."

TEN CENT MILK.

THE statement has been recently made that ten cents a quart will be charged for milk this winter to residents of Boston and vicinity. Whether or not the efforts of the authorities to prevent this are successful, it is worth while for physicians to be assured of two things. First, ten cents is not an unreasonable price to ask for fresh, clean, pure milk; it costs that to produce it. And second, in food value, milk at ten cents a quart is not an extravagant but a relatively cheap food.

Under the research fellowship established and supported by the Milk and Baby Hygiene Association, Dr. Edwin H. Schorer, working in the Department of Preventive Medicine and Hygiene at the Harvard Medical School, last year, proved the first fact to be true. A cow remains in a herd about four years. Hence one-fourth of the value of the cow must be charged off each year. Tuberculin testing of herds means an addition to the expense of one-half to one cent per quart. Milking itself costs from six-tenths to three-quarters of a cent a quart. Inspection costs the contractor from two-hundredths to twenty-hundredths of a cent per quart. Transportation to the city from the country averages half a cent a quart in cans. Bottling, pasteurizing and storage add nearly a cent and delivery rather more than two cents. The four contractors supplying Boston use more than $300,000 worth of glass ware and tin ware each year. Add to these items the nearly four cents which it costs the farmer to produce a quart of milk and you see that there is not much profit in 10 cent milk, if we accept Dr. Schorer's figures. That some producers shade these items of expense is of course apparent, and it is obvious where the saving can be made. On the other hand the fact that many farmers are giving up milk production because there is no money in it, proves the practical truth of this research.

The basis for our second assertion, as to the value of milk as a food, is a comparison of the value and cost of a quart of milk with those of a few familiar forms of nitrogenous food. Two-fifths of a pound of roast beef yields the same amount of energy and costs at 40 cents a pound 16 cents. Tenderloin steak has not the same caloric value as roast beef, although it costs 50 cents a pound. It takes half a pound to equal a quart of milk and costs 25 cents. Roast lamb yields still less energy. A slice, weighing 75 grammes, equals 150 calories. That is, it will take five such slices or three-fourths of a pound to equal a quart of milk and that will cost at least three-fourths of 20 cents and probably twice that, for one must pay for bone in buying lamb. If we turn to chicken we must supply four-fifths of a pound to equal the energy value of a quart of milk and that will cost four-fifths of the 35 or 40 cents one must pay for chicken, or about 30 cents. Good eggs weigh about 50 grammes each. It takes eight or nine such eggs to equal a quart of milk as an energy producer. With eggs at 60 cents a dozen, as they will be this winter, that means an expense of 40 or 45 cents.

We have noted prices that city people must pay in good reliable markets. One may be able to buy for less. But the fact will remain that, relatively considered, milk is a cheap food at 10 cents a quart.

INFANTILE PARALYSIS AND BITING FLIES.

THE International Congress on Hygiene and Demography, which has just completed its session in Washington, will be notable for many reasons, but it is unlikely that any event occurring at that gathering will be the subject of greater discussion and perhaps controversy than the announcement made under the joint auspices of the Massachusetts State Board of Health and Harvard University—that infantile paralysis may be transmitted from monkey to monkey through the agency of biting flies.

It will be remembered that the investigation of infantile paralysis in Massachusetts was first undertaken by the State Board of Health in 1907 at the suggestion of Dr. Robert W. Lovett, who had been appointed recently a member of that board and made possible by the coöperation and initiative of its secretary, Dr. Mark W. Richardson. This investigation, beginning with modest proportions, grew steadily in scope.

The board invited to its councils a distinguished group of advisers and a number of lines of research were made the subject of enquiry and report. It was three or four years, however, before the evidence obtained began to crystallize into forms which indicated more or less clearly in which direction the truth lay. That infantile paralysis was a communicable disease there was no doubt, but the method by which infection was

transferred from individual to individual was far from demonstrated. That the disease spread from person to person by direct or indirect contact was the opinion of Swedish observers who had had the largest experience. This view, furthermore, seemed to receive its complete confirmation in 1912 through the work of Kling, Weinstedt and Petterson, who were able to demonstrate an active virus in the nasal-pharyngeal secretions and in washings from the small intestine, not only from persons acutely or subacutely sick, but also from persons not ill, but who had been in contact with infected cases. The reasonableness of such a method of transfer, however, had never appealed strongly to the Massachusetts investigators, for although it explained the epidemiology of the disease in some instances, it failed utterly in others. The rural incidence of the infection acknowledged by all observers, the seasonal incidence, the irregularity of the distribution of cases, the analogy and resemblances to rabies and yellow fever all suggested rather transmission through the bite of some insect. An entomological investigation along these lines carried out in 1911 by Mr. Charles F. Brues, instructor in Economic Entomology of Harvard University, showed that the only biting insect constantly found in the neighborhood of cases of infantile paralysis (that is to say, outside of the more common varieties of mosquitoes) was the ordinary stable fly *stomoxys calcitrans*.

Working on this suggestion, Professor M. J. Rosenau undertook some experiments on monkeys in the late summer of 1911. These experiments were, however, inconclusive. In 1912 Professor Rosenau again took up the investigation with an improved technique and was fortunate enough to be able to make a preliminary report to the congress of positive results with the monkeys exposed to the bites of infected flies of the variety above mentioned. It is of course essential that this work be confirmed. It must be borne in mind, furthermore, that the disease may be transmitted possibly in two or even more ways and that the secretions of mouth and nose (and the intestinal tract) may also be the means by which some cases of the disease are induced. There is strong reason to believe, therefore, that we are about to see clearly how this serious infection may be spread. If so, the demonstration will be a monument to splendid team work between the State and local health authorities, Harvard University and the medical practitioners of the Commonwealth.

MEDICAL NOTES.

Four Living Russian Centenarians.—In the issue of the *Lancet* for Sept. 21 (p. 862), a correspondent calls attention to the cases of four living centenarians of Moscow, aged respectively 122, 118, 112, and 120 years. All have served as soldiers in the Russian army, and all now pensioned.

Death of a Spanish Infanta.—Report from Madrid announces the death on Sept. 23 of the Infanta Maria Theresa, sister to the King of Spain. The death is said to have been due to embolism, though whether cerebral or pulmonary is not stated. The Infanta is married and has three young children. It seems likely that this terminal disaster was associated with another obstetric episode.

Bubonic Plague in Porto Rico.—During the week from Sept. 6 to 12, inclusive, four new cases of bubonic plague were reported from La Perla in the municipality of San Juan, P. R. The infection in these cases is believed to have been derived from a single common focus, now eradicated.

Two Important Foci of Poliomyelitis.—The two chief foci of poliomyelitis in the United States this season are Buffalo, N. Y., and Los Angeles, Cal. The total number of cases at Buffalo up to Sept. 14 was 226 with 30 deaths; at Los Angeles up to Sept. 7, 249 cases.

Electrolytic Purification of Milk.—Report from the Ohio State University at Columbus, Ohio, describes some experiments made there recently, by Dr. C. B. Morrey and Professor F. C. Caldwell, on the electrolytic purification of milk by allowing it to flow through a series of metal vessels, forming electrodes of opposite polarity.

"In a sample of milk containing 19,480,000 bacteria per cc., an application of 2.5 amperes at 2000-volts alternating current for fifteen seconds reduced this number by 99.97 per cent. Another similar test showed a reduction of 98.7 per cent., and a third, in which the milk was inoculated with diphtheria bacteria in very large numbers, showed their practically complete destruction. Chemical examination of the milk

showed no changes which would account for the sterilization, nor could this be accounted for by the heating which took place."

HONOR FOR DR. WASHBURN.—At the closing session of the recent annual convention in Detroit, Mich., of the American Hospital Association, Dr. Frederic A. Washburn, administrator of the Massachusetts General Hospital, was elected president of the Association for the ensuing year.

PLANT FORCING BY RADIUM.—Recent report from the Vienna Radium Institute describes researches by Molisch on the effect of radium emanations on sprouting plants.

"The positive effects were obtained only during the winter rest period of plants—in late November or in December The action was easily carried too far, and then the plant was killed, and of the species tested a little more than half gave no response to the stimulation.

"More marked results were obtained with radium emanation applied to the plant under a bell-jar, instead of with direct radiation."

RADIUM IN COLORADO.—Report from Denver, Colo., on Sept. 23, describes the recent discovery of extensive deposits of radium-bearing ore near that city.

BOSTON AND NEW ENGLAND.

SEIZURES OF BEER AND VODKA.—During the past week the federal officials have made at Boston seven seizures of alleged impure beer and Russian vodka, shipped to this port from New York. The total number of bottles seized amounted to about 1000 cases, valued at $3000.

SMALLPOX ON THE NORTH SHORE.—Report from North Andover, Mass., on Sept. 27 states that several cases of smallpox, which had recently appeared in that town, have all been traced to a single case in Newburyport, Mass.

RECENT HOSPITAL BEQUESTS.—The will of the late Mary J. Colby, of Franklin, N. H., which was filed on Sept. 29 for probate, contains a bequest of $50,000 to the Franklin Hospital. It also contains bequests of $5000 each to the Laconia Hospital, the Marguerite Pillsbury Hospital at Concord, N. H., and the Sacred Heart Hospital at Manchester, N. H.

WALTHAM TRAINING-SCHOOL GRADUATION.—On Friday evening of last week, Sept. 27, were held the annual graduation exercises of the Waltham (Mass.) Training-School for Nurses. The address was by Dr. William Patch of Framingham, Mass. Diplomas were awarded to 18 pupil candidates, the largest class which has ever been graduated from this institution.

A LIVING CENTENARIAN.—Mrs. Sylvanus Dame, of Hanson, Mass., who is said to have been born on Sept. 28, 1812, in Exeter, N. H., celebrated on Saturday of last week, her supposed centennial anniversary. She was in excellent health and spirits. Four generations of her descendants were present at the celebration. Mrs. Dame has been a widow for almost 30 years.

NEW YORK.

OPENING OF COLUMBIA.—The formal opening of Columbia University for its 159th annual session took place on September 25. The exercises at the medical department, the College of Physicians and Surgeons, were held in the morning, when Dr. Theodore C Janeway, Bard Professor of the Practice of Medicine, delivered an address on "The Importance of Pathological Theory for Practical Medicine." At the general opening exercises, in the afternoon, the address of welcome was given by the President, Dr. Nicholas Murray Butler, and in the course of it he made the suggestion that each student should choose for special study during the coming year one of four books, Tennyson's Poems, Emerson's Essays, Morley's Life of Gladstone, and the Life of Pasteur; selecting the work according to the individual taste. "Whichever of these you choose as your companion of this year," he said, "you will have an association never to be forgotten. From this companionship you will gain a centre point about which to organize your own personal academic studies. . . . From it you will get a sense of achievement and of the worth that will contribute powerfully to your intellectual and moral growth as a human being." On this occasion the principal address was made by Dean F. J. E. Woodbridge, on "The Discovery of the Mind."

SEVERE MILK FINE.—Adam Treuger, a wholesale milk dealer, was recently fined $150 and sentenced to twenty days imprisonment in the Tombs for selling adulterated milk. At his trial the Health Department inspector who secured

his prosecution testified that he sold 2000 quarts of milk a day and that at the time of his arrest three cans containing water were found in his wagon, while the rest of the cans contained milk 15 per cent. below the required standard. In urging sentence the prosecuting attorney said: "This man has caused the arrest of many innocent persons (his customers) by his greed, and a number of them have had to pay heavy fines through no fault of their own."

A Typhoid Epidemic.—The report, just made public, of the investigation made by Dr. George W. Stiles, chief of the bacteriological laboratory of the Federal Bureau of Chemistry, of the outbreak of typhoid fever and other illnesses which occurred among persons participating in the dinner of the Minisink Hook and Ladder Company at Goshen, Orange County, N. Y., on October 5, 1911, shows conclusively that the cause of the trouble was contaminated oysters. In this report Dr. Stiles states that there were 17 well-defined cases of typhoid fever, with one death, and 83 cases of gastro-enteritis traced directly to eating Rockaway oysters from Jamaica Bay, floated at Indian Creek, near Canarsie, Borough of Queens, New York City. The bacteriological examination of water and shellfish collected from Jamaica Bay showed that this body of water is dangerously contaminated. The laboratory data were substantiated by the sanitary inspection, showing that millions of gallons of sewage discharge daily into the bay, and, in many instances, in close proximity to or directly over oyster beds. Organism of the bacilli were isolated from the oysters. Dr. Soper, chairman of the Metropolitan Sewerage Commission of New York, has expressed the opinion that this report will be of great practical value in furthering the work of his commission.

Garden Cities.—At a dinner given him at the City Club by Frederic Howe, director of the People's Institute, on September 27, Henry Vivian, ex-member of Parliament and chairman of the Copartnership Tenant's Movement in England, gave an interesting description of the growth of the garden city idea in his country. To illustrate the value of suburban garden towns for the housing of the workingmen of large cities and their families, he gave statistics which were gathered by a committee of Parliament of which he was a member. These showed that the average child of 7 years brought up in one of these communities was three inches taller than the average child of the same age living in a densely populated city, while at the age of 14 the former averaged five inches more in height and thirty pounds more in weight than the latter. In some of the crowded manufacturing towns the annual death-rate was as high as 40 per 1000 inhabitants, while in the garden towns the rate had been reduced to between 8 and 9. As a result of this parliamentary investigation, the Housing and Town Planning Act, which provided Government support for the building of ideal suburbs around the great centres of population in the British Isles, was passed in 1909. The Copartnership Tenant's Movement, he said, had designed suburbs near Liverpool, Manchester, Birmingham, Hampstead and a number of other places, and he described the manner in which these were laid out. As a result of Mr. Vivian's remarks, a resolution calling for the appointment of a committee to promote the garden city movement in the vicinity of New York was adopted by those present; among whom were Henry DeForest Baldwin, president of the People's Institute, and John M. Glenn of the Sage Foundation Home Company.

Obstetrics on an Elevated Train.—The south-bound service of the Third Avenue elevated railroad was recently blocked for fourteen minutes in consequence of the birth of a child in one of the cars, just as the train was coming into the 138th Street station, in the Bronx. With as much expedition as possible an ambulance for the mother and infant was procured from the Lincoln Hospital, the hospital nearest at hand.

Hospital Bequest.—By the will of the late J. H. Shaefer of New York the Presbyterian Hospital and the German Hospital and Dispensary each receive bequests of $10,000.

Large Charitable Legacy.—By the will of Henry Beekman Armstrong, a relative of the Astor family, who died recently at his home in Dutchess County, N. Y., the bulk of his estate, estimated at $200,000, is left to be used for philanthropic and charitable purposes in the town of Rhinebeck.

DECLINE OF TUBERCULOSIS.—That a definite gain has been made in New York in the contest against tuberculosis is evidenced by the decline in the mortality from this disease, as shown by the following figures:

"In 1898 the death rate from tuberculosis for 10.000 of the population was 2.25. The estimated population was then 3,250,000. There were 7700 deaths from the malady that year. In 1911, with an estimated population of 5,000,000, there were 8800 deaths, or a rate of 1.76 per 10,000."

HERTER FOUNDATION LECTURES.—The Faculty of the University and Bellevue Hospital Medical College has issued invitations to a series of "five lectures to be given under its Herter Foundation on "Energy Problems in Nutrition," by Professor Max Rubner of the University of Berlin, beginning on Monday, October 7.

Current Literature.

MEDICAL RECORD.

SEPTEMBER 21, 1912.

1. APOSTOLIDES, A. G. *The Etiology and Pathogenesis of Bronchial Asthma.*
2. TAYLOR, J. M. *The Negro and His Health Problems.*
3. CLEAVES, M. A. *Derailed Forces.*
4. CLAPP, H. C. *Worry as a Cause of Arteriosclerosis.*
5. FRIEDMAN, G. A. *A Tentative Diagnosis of Aneurysm of the Hepatic Artery, and Findings at Operation.*
6. OLITSKY, P. K. *Amenorrhea Due to Thyroid Insufficiency.*
7. BREWER, I. W. *Are the Present Methods of Disposal of Human Excrement Satisfactory?*

NEW YORK MEDICAL JOURNAL.

SEPTEMBER 21, 1912.

1. BIERHOFF, F. *Further Notes on the Sanitary Control of Prostitution in Some European Cities.*
2. POLLITZER, S. *Skin Diseases in Relation to the Nervous System.*
3. KNAPP, M. I. *The Newer Teachings of the Diseases of the Alimentary Canal.*
4. CUMSTON, C. G. *Syphilis and Gonorrhea as Depicted in the "Songes Drolatiques de Pantagruel."*
5. ARONSON, E. A. *Some Diagnostic Aids in Gastric Diseases.*
6. FRIEDMAN, H. M. *Clinical Observations of Trachoma.*
7. STEINHARDT, I. D. *Ten Sex Talks to Girls.*
8. *NARINS, W. *Mitral Stenosis and Pulmonary Tuberculosis.*
9. SEYMOUR, N. G. *Cardiac Disease and Pulmonary Tuberculosis.*
10. WEILL, N. J. *The Child and Constipation.*

8. Narins writes on the alleged relative immunity to pulmonary tuberculosis of persons with left-sided heart disease, especially mitral stenosis. Some go so far as to say that cyanosis is incompatible with tubercle formation. The writer reports ten cases of phthisis and mitral stenosis combined, and his experience inclines him to believe that passive pulmonary congestion is a great aid in the treatment of consumption. He therefore recommends the use of the recumbent posture by phthisical patients.

[L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

SEPTEMBER 21, 1912.

PART I.

1. MILLER, J. L. *How May the Science of Therapeutics Be Advanced?*
2. CLARK, W. L. *High-Frequency Desiccation, Fulguration and Thermoradiotherapy. Their Uses in Therapeutics.*
3. HUNT, C. J. *Bacillary Dysentery. A Contribution to the Study of the Epidemiology.*
4. *WILLSON, R. N. *The Eradication of the Social Diseases in Large Cities.*
5. WILBUR, R. L., AND ADDIS, T. *Urobilin: Its Clinical Significance. Preliminary Report.*
6. JOSLIN, E. P. *My Experience with Diabetic Patients Living Ten or More Years.*
7. BASS, C. C. *Successful Cultivation of Malarial Plasmodia.*
8. OPPENHEIMER, B. S. *A Routine Method of Opening the Heart With Conservation of the Bundle of His and the Sino-Auricular Node.*
9. YOUNG, H. McC. *Description of a New Urethrotome.*
10. GRULEE, C. G. *The Relation of the Parathyroid Gland to Infantile Tetany.*
11. *MARSH, J. P. *Cesarean Section Done Under Spinal Anesthesia for Eclampsia: Report of Three Cases.*
12. DRENNEN, E. *Subclavian Aneurysm With Successful Endo-Aneurysmorrhaphy.*
13. OLSON, G. M. *A Case of Sporotrichosis in North Dakota: Probable Infection From Gophers.*

PART II.

EYE, EAR, NOSE, AND THROAT.

1. ALT, A. *Sympathetic Chorioiditis.*
2. URHOEFF, F. H. *Sclerosis of the Ligamentum Pectinatum and Its Relation to Glaucoma.*
3. KNAPP, A. *The Krönlein Operation as an Exploratory Procedure in the Orbit.*
4. TINKER, M. B. *The Surgical Treatment of Exophthalmos.*
5. JONES, E. L. *Subconjunctival Injections in Ophthalmic Therapy.*

6. THOMSON, E. S. *Sympathetic Optic Neuritis.*

7 BRUNS, H. D. *Phlyctenular Ophthalmia and Its Etiology.*

8. LAMBERT, W. E. *Removal of the Lens in High Myopia.*

9. DUANE, A. *Normal Values of Accommodation at All Ages.*

10. CHANCE, B. *Morgagnian Cataract..*

11. WEIDLER, W. B. *Pemphigus of the Conjunctiva Report of a Case with Microscopic Findings.*

12. POSEY, W. C. *Orbital Cellulitis From Disease of the Superior Maxilla in Children.*

13. HOWE, L. *Measurement of Fatigue of the Ocular Muscles.*

14. THEOBALD, S. *Suggestions Regarding Some Points in the Technic of Cataract Extraction.*

15. BOSSIDY, J. C. *A Case of Uniocular Polyopia Existing in Both Eyes.*

16. BULSON, A. E. *Some Early Diagnostic Retinal Signs of Arteriosclerosis and Chronic Bright's Disease.*

17. WOOD, C. A. *Nasal Hydrorrhea; Its Relations to Lesions of the Brain and Visual Apparatus.*

18. DE SCHWEINITZ, AND HOLLOWAY, T. B. *Visual-Field Defects in Hypophysis Disease, with Special Reference to Scotomas.*

19. DERBY, G. S. *Disease of the Optic Nerve in Myxedema; Its Relationship to the Thyroid Gland and to the Hypophysis.*

20. ZENTMAYER, W. *Visual Disturbances from Distant Hemorrhage.*

21. JACKSON, F. *The Proper Provision for Teaching Ophthalmology in the Medical Schools.*

22. ELLETT, E. C. *Cataract Extraction with Corneal Suture.*

23. FRIEDENBERG, P. *Preparatory Capsulotomy in Extraction of Immature Senile Cataract.*

24 GREENE, D. W., AND MILLETTE, J. W. *Visual Results After the Smith Operation for Cataract.*

25. CALHOUN, F. P. *Eye Complications Caused by Hookworm Disease, With Special Reference to the Formation of Cataracts.*

26. DONOVAN, J. A. *The Dangers to and the Requirements of the Eyes of the National Marksmen.*

27. REBER, W. *The Findings of the Tropometer in 100 Normal Eyes and Its Value in the Study of Strabismus.*

28. SHAMBAUGH, G. E. *The Specialist in Medicine.*

29. TODD, F. C. *Ethmoiditis as a Common Signal (Never the Cause) of Pollinosis (Hay Fever).*

30. HIDSEY, P. H. *The Roentgen Ray in Otolaryngology.*

31. MCKERNON, J. F. *The Operative Treatment of Brain Abscess of Otitic Origin.*

32. DECRUM, F. X. *Diagnosis and Localization of Brain Abscess.*

33. GOLDSTEIN, M. A. *Diseases of the Ear Which Lead to Brain Abscess.*

34. MATTHEWS, J. *The Relation of Nasal Conditions to Asthma.*

35. FRIEDENBERG, W. *Further Experience with Endobronchial Therapy of Asthma.*

36. HURD, L. M. *Indications and Contra-indications for Tonsillectomy.*

37. CULLOM, M. M. *Refinements Which Render Tonsillectomy Safe, Surgical and Satisfactory.*

38. DUFRAY, H. *Chronic Laryngeal Stenosis. Treatment by Prolonged Intubation.*

39. JACKSON, C. *The Dilatation of Bronchial Strictures,: Notes on the Clinical Pathology of Bronchiarctia.*

40. FREER, O. T. *The Submucous Resections of Deflections of the Nasal Septum. The Author's Present Perfected Method.*

41. RICHARDSON, C. W. *Correcting Deflection of the Nasal Septum.*

42. LOEB, H. W. *Submucous Resection of the Nasal Septum: Indications and Contra-indications.*

43. SKILLERN, R. H. *The Exploratory Needle Puncture of the Maxillary Antrum in One Hundred Tuberculous Individuals.*

44. BORDEN, C. R. C. *Use of Salvarsan in Lesions of the Nose and Throat.*

45. LEWIS, E. R. *Cellular Changes During and After Acute Mastoiditis and with a Consideration of the Inadvisability of Certain Operative Procedures.*

46. HEND, L. M. *Tonsil Dissector, Tonsil-grasping Forceps, Tonsil Hemorrhage Clamp.*

4. Willson points out that the social diseases, through sex education of the public, can be finally as well controlled as smallpox and tuberculosis, which only a comparatively short time ago were looked at as hopeless and permanently beyond control. Syphilis and gonorrhea should be placed on the list of compulsory reportable diseases. Ample living wages for girls and women will largely reduce prostitution.

11. Marsh reports three cases successfully operated on under spinal anesthesia for a Cesarean section in eclampsia with good results. The uterus contracted promptly and efficiently. This was the type of case in which there had been a high mortality under any other form of procedure.

[E. H. R.]

THE JOURNAL OF EXPERIMENTAL MEDICINE.

SEPTEMBER 1, 1912.

1. MANWARING, W. H. *The Nature of Bactericidal Substance in Leucocytic Extract.*

2. NOGUCHI, H. *Pure Cultivation of Spirochata Phagedenis (New Species). A Spiral Organism Found in Phagedenic Lesions on Human External Genitalia.*

3. JOBLING, J. W., AND STROUSE, S. *Studies in Ferment Action. II. The Extent of Leucocytic Proteolysis.*

4. MEARA, F. S., COFFEN, T. H., AND CREHORN, A. C. *A Comparison of Simultaneous Polygraph and Micrograph Tracings.*

5. ROBINSON, G. C. *A Study with the Electrocardiograph of the Mode of Death of the Human Heart.*

6. LEVENE, P. A., AND KRISTELLER, L. *Nitrogen and Nuclein Metabolism in Gout.*

7 *WOLLSTEIN, M. *The Duration of Immune Bodies in the Blood after Antityphoid Inoculation.*

8. *MILNE, L. S. *Post-Hemorrhagic Anemia.*

9. *CRAIG, C. F., AND NICHOLS, H. J. *A Study of Complement Fixation in Syphilis with Spirochaeta Culture Antigens.*

10. PEARCE, R. M. *The Retention of Foreign Protein by the Kidney.*

11. PEARCE, R. M., AUSTIN, J. H., AND KRUMBHAAR, E. A. B. *The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice. I. Reactions in Hemolytic Serum at Various Intervals after Splenectomy.*

12. PEARCE, R. M., AUSTIN, J. H., AND EISENBREY, A. B. *The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice. II. The Relation of Hemoglobinuria and Jaundice in Normal and Splenectomized Animals.*

7. Wollstein found that fifteen out of nineteen persons inoculated with anti-typhoid vaccine showed a blood negative for bactericidins after thirteen months. She concludes that while there is no justification for the assumption that clinical immunity can be determined absolutely by the measure of the immune bodies in the blood, yet re-inoculation with typhoid vaccine within a year is indicated when exposure to typhoid fever seems imminent.

9. Craig and Nichols studied the Complement Fixation Test in syphilis, using antigens made from cultures of spirochaetae. They conclude that the alcoholic extracts of pure cultures of spirochaeta pallida while giving results approaching closely those obtained with a stock antigen, on the whole give much less reliable results than the stock syphilitic liver antigen.

[R. I. L.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT. No. 30.

JULY 25, 1912.

1. *UMBER. *Operations on Diabetics.*
2. WOLFSOHN. *Anaphylaxis Due to Thyroidism?*
3. HESS. *Experiments with the Colon Bacillus as a Cause of Suppuration.*
4. LIPPMANN. *Hemorrhagic Nephritis in Purpura. Six Cases.*
5. ENGELHARDT. *Changes in the Hearing with Central Neurofibromatosis.*
6. VAS. *A Source of Error in the Phenolphthalein Test for Occult Blood.*
7. v. ONDREJOVICH. *A New Method for Testing for Acetic Acid in the Urine.*
8. HIROSE. *Alimentary Galactosuria in Liver Disease and in Neuroses.*
9. LURIA. *Dilatation of the Sigmoid.*
10. HERTZ. *Serodiagnosis of Echinococcus Disease.*

1. In a careful address Umber takes for his theme the statement that surgical treatment is not materially contraindicated by diabetes. He attributes the poor results of surgery of diabetics to the internist's delay in summoning the operator until the best time for interference is lost.

The gangrene in diabetes is the result of arterial change, and is not directly due to the changed metabolism. Often the removal of the gangrenous part will be found to exert a beneficial effect on the course of the disease.

The author believes it important to determine the severity of the diabetes in operative cases, and to discriminate between an essentially severe case and an exacerbation of a mild one. But even the severe cases may be successfully operated upon, according to the examples cited.

Treatment preliminary to operation consists in reducing the sugar and attempting to ward off acidosis. Umber has found the oatmeal cure useful for this purpose. Bicarbonate of soda or magnesia must be given with it. If operation is imperative, he adds small doses of opium to the alkali treatment. Intravenous administration of alkali is dangerous since it predisposes to thrombosis. Operations should be performed before breakfast, under local anesthesia whenever possible.

[C. H. L., JR.]

No. 31. AUGUST 1, 1912.

1. TRAUBE. *Methods of Increasing the Action of Drugs and Toxins.*
2. WAERTHLEIN. *Mutation Phenomena in Bacteria.*
3. WECHSELMANN. *Intralumbar Injection of Neosalvarsan.*
4. STEIRLIN. *X-ray Diagnosis of New Growths in the Abdomen from Displacement of Large Intestine.*
5. WOLLF-EISNER AND VOGT. *Instantaneous X-rays of the Thorax.*
6. FRIEDLANDER. *Radiotherapy with Mesothorium in Gynecology.*
7. EPHRAIM. *The Effect of Adrenalin in Asthma and Chronic Bronchitis.*
8. WEISSENBERG. *Epidemic of Jaundice.*
9. WAGNER. *Treatment of Ruptured Extrauterine Hemorrhage.*
10. PARTSCH. *Osteomyelitis of the Patella.*

BERLINER KLINISCHE WOCHENSCHRIFT. No. 27.

JULY 1, 1912.

1. BRILL, O., AND ZEHNER, L. *The Action of Soluble Radium Salts on the Blood.*
2. ROSENTHAL, A. *The Pathology of the Secretions in Diabetes Insipidus.*
3. STUMPKE, G. *The Favorable Influence of Salvarsan on Pemphigus.*
4. GENNERICH, W. *The Etiology of Nervous Relapses and the Treatment with Salvarsan.*
5. SCHMIDT, H. E. *The Results and Technic of X-ray Treatment in Gynecology.*
6. STUMPF. *Gummatous Tracheitis.*
7. HUBER, O. *The Differential Diagnosis of Aneurysm of the Aorta.*
8. KERTMANN, B., AND MAYER, N. *The Measurement and Dosage of Thorium-X Preparations.*
9. MEYER, L. F. *Spasmophilia.*

No. 28. JULY 8, 1912.

1. *KÜMMELL, H. *The Surgical Treatment of the Different Forms of Nephritis.*
2. NOGUCHI, Y. *The Preliminary Use of Entero-Anastomosis in the Treatment of Gangrenous Hernia.*
3. BLUMREICH. *Innovations in Gynecological Diagnosis.*
4. WELEMINSKY, F. *The Formation of Albumin and Mucin by the Tubercle Bacilus.*
5. BICKEL, A. *The Thorium-X Treatment of Pernicious Anemia.*
6. LEVY-DORN, M. *Composite Pictures of a Single Muscular Movement.*
7. FULD, E., AND SCHLESINGER, E. *The Coagulation of the Blood.*
8. MUHSAM, H. *Experiments with Bochm's Rapid Distiller, and the Resistance of the Red Blood Corpuscles to Salvarsan.*
9. SCHMIDT, G. *Innovations in the Sanitary Management of the German Army During the Year 1911.*
10. ALBERT, A. *Modification of the Killian Suspended Laryngoscope.*
11. HANANER, W. *Medico-legal Questions in Casualty Insurance.*

1. Kümmell believes that operation is the best and safest method of treatment for acute nephritis with abscess formation, nephrotomy being the operation of choice. Chronic nephritis with one-sided pain is also best treated by decapsultation or nephrotomy, the pain being practically done away with, and the urine showing great improvement for a long period of time. In medical nephritis or Bright's disease, his results are not so good, although he feels strongly convinced that for anuria and uraemia, decapsulation offers a

very distinct hope for relief. He reports a striking case of improvement of uraemia following decapsulation.

[J. B. S., Jr.]

No 29. July 15, 1912.

1. *Koranyi, A. V. *The Effect of Benzol on Leucemia.*
2. Frank, P. *Rheumatismus Nodosus with Especial Consideration of the Pathological-anatomic Findings.*
3. Hirsch, J. *Pregnancy Following Artificial Fecundation.*
4. Ehrmann, R. *A Method for Testing the Functioning Power of the Pancreas.*
5. Liefmann, H., and Lindemann, A. *Infant Mortality in Berlin During the Summer of 1911.*
6. Müller, A. *Pericranial Sinus.*
7. Fromme, A. *Protracted Scopolamin Narcosis for the Withdrawal of Morphine.*
8. Schaass, W. *Schools and Workshops for Cripples in Connection with Medical Treatment.*
9. Bercke, R. *A Soluble Aspirin.*
10. Schmidt, H. A. *Vaccine Treatment for Female Gonorrhea.*

1. In a short article which is full of meat, the author reports a typical case of leucemia treated with benzol, giving 3 to 4 gms. of the drug daily. He found that the number of white blood corpuscles markedly decreased a week or two after treatment commenced. After this the decrease was less rapid but constant. The blood picture constantly improved. After a longer period of time, the erythrocytes began to decrease, the spleen also got smaller, but there was less effect on the lymph nodes. Where the x-ray works well it is more rapid than the benzol, but the latter may succeed where the x-ray fails, and patients who have already had the x-ray seem to respond more readily to the benzol. Doses of even 5 gms. of benzol during the day gave no serious effect. The stomach disturbances such as burning in the stomach, eructations, tracheo-bronchitis, and dizziness may be avoided by giving an equal amount of oil with the benzol.

[J. B. S., Jr.]

Wiener Klinische Wochenschrift. No. 37.

September 12, 1912.

1. Theilhaber, A. *The Doctrine of the Treatment of Patients After Carcinoma Operations.*
2. *Bauer, J. *The Lipolytic Ferment of the Blood Serum in Disease Conditions.*
3. *Thaler, H. *The Question of the Value of Vaginal Caesarean Section as an Obstetric Procedure.*
4. Bénesi, O. *A Contribution on Diphtheria of the Middle Ear.*
5. Siccardi, P. D. *Investigations on the Changes in the Elimination of Urobilin and Uric Acid in Brief Applications of Cold Water.*

2. Bauer, from the university clinic at Innsbruck, reports investigations which indicate that in patients with carcinoma, or grave phthisis, the content of fat-splitting ferment, normally present in the human serum, is usually markedly reduced. In slight, benign, apical tuberculous affections, the lipase value is often strikingly high. In lues and Basedow's disease there is a relatively smaller content of lipolytic ferment. The slight lipolytic capacity of certain sera rests not on an increase of thermostable anti-ferments, but on a diminution in the content of fat-splitting ferment.

3. Thaler, from Schauta's clinic in Vienna, presents a report of 16 cases, from study of which he concludes that anterior colpohysterotomy is a procedure distinguished by advantages of many sorts, but that its employment is justified only with adequate assistance, mature preparation, after the fifth month of pregnancy, in the mother's interest, and under urgent conditions. At term the operation does not offer a guarantee for the preservation of the fetal life. With regard to special methods of technic, the author recommends merely the splitting of the anterior uterine and vaginal wall.

[R. M. G.]

Il Policlinico.

September, 1912.

Surgical Section.

1. *Poggiolini, A. *The Identity of the Streptococci of Various Origin, Pathogenic for Man.*
2. Leonardo, D. *Regeneration and Plastics of the Peritoneum.*
3. Leotta, N. *Hyperplastic Hypophysary Struma with Acromegaly: A Contribution to the Pathology and Surgery of Hypophysary Tumors.*

1. In this clinico-experimental contribution from Biondi's clinic at Siena, Poggiolini maintains the identity of all the supposed species of streptococci which he believes differ only in virulence.

[R. M. G.]

Obituary.

SIR WILLIAM JAPP SINCLAIR, M.D., M.R.C.P.

William Japp Sinclair, who died on Aug. 21, at Manchester, England, was born in Laurencekirk, Kincardineshire, Scotland, on March 6, 1846. He entered the University of Aberdeen, where he obtained the degree of M.A. with honors in natural science in 1869 and graduated in medicine with honors and the degrees of M.B. and C.M. in 1873. He was immediately appointed resident medical officer of St. Mary's Hospital, Manchester, and later was house surgeon at the Manchester Clinical Hospital for Women and Children. The year 1875 he spent in the study of obstetrics and gynecology at Vienna. On his return, he received the degree of M.D. from Aberdeen, and was appointed honorary physician to the Manchester Southern Hospital for Women and Children.

There now ensued the period of early teaching, practice and writing, which established Sinclair's reputation as a clinician and author. In 1884, with Dr. James Niven, he founded the *Medical Chronicle*. To this he contributed in 1887 a series of papers on "Gonorrhea in Women," which he subsequently published in book form.

In 1888 Dr. Sinclair was appointed to succeed the late Dr. Cullingworth as professor of obstetrics and gynecology in Owens College, Manchester; and later, when this college became a member of the federal Victoria University, he retained this professorship. In 1892 he became a member of the Royal College of Physicians. From his professional position he took considerable part in the discussions of the time, notably with regard to the registration and supervision of midwives. He became one of the founders of the North of England Obstetric and

Gynecologic Society. In 1902, he delivered the address in obstetrics and gynecology on "Carcinoma in Women" before the British Medical Association. In 1904 he was knighted. In 1909 was published his admirable work on "The Life and Times of Semmelweis."

Dr. Sinclair was a member and president of the Manchester Medical Society, and a corresponding member of the German Gynecologic Society and of the Royal Medical Society of Budapest. He is survived by his widow and two daughters.

LEONARD WORCESTER WILLIAMS, PH.D.

DR. LEONARD WORCESTER WILLIAMS, who died on Sept. 26 in Boston, was born at Muskogee, Okla., on July 8, 1875, the son of a physician. He graduated from Princeton in 1899, and in 1901 received the degree of Ph.D. from Brown. The study of biology was his favorite pursuit, and in the candidacy for his doctorate he performed excellent original descriptive work on the lobster and the squid. He was early appointed an instructor in comparative anatomy at the Harvard Medical School, a position which he held until his death. He was a member of the Boston Society of Natural History and of many other scientific bodies. He is survived by his widow and three young children.

To his colleagues in his department, to his personal friends, to all who in any way were brought in contact with Dr. Williams, his sweet and gentle nature, his whole-souled absorption in his work, his courtesy and consideration for others made him particularly endeared. The tragic traumatic circumstance of his death makes all the more grievously shocking the untimely loss of so true, noble, unselfish, and devoted a spirit.

ALBERT WOOD, M.D.

DR. ALBERT WOOD, who died on Sept. 26, at Worcester, Mass., was born in Northboro, Mass., in 1833. After graduating from Dartmouth College in 1856, he taught school for three years. He received the degree of M.D. from the Harvard Medical School in 1862, and immediately entered the United States Army service as field surgeon of the Twenty-Ninth Massachusetts Infantry. In August, 1863, he was transferred to the First Massachusetts Cavalry, and remained with that command until the close of the Civil War. In 1865 he settled in the practice of his profession at Worcester, where he continued until his death. During this time he served for five years as city physician, and for ten years was surgeon to the Worcester City Hospital. He was also treasurer of the Worcester State Hospital, superintendent of the Washburn Free Dispensary, member of the State Boards of Health and Lunacy, and a Fellow of The Massachusetts Medical Society since 1866. He is survived by his widow and by one daughter.

Miscellany.

ADDITION TO CAMBRIDGE HOSPITAL.

WITHIN a short time work will be begun on an extensive addition to the Cambridge (Mass.) Hospital, which will nearly double the size of the institution and its capacity for patients.

"In appearance the new building will resemble the letter H. It will be built east of the present accident-room, which in turn is east of the administration building, and will be connected with the older building by a covered loggia. To make room for the new hospital the present laundry building will be demolished.

"The proposed addition, which is to be known as the new ward and service building, will be three stories high on Mt. Auburn Street and four stories above ground in the rear because of the incline towards the Charles River. Its front will face north and will be parallel to Mt. Auburn Street. The westerly part of the basement of the new building will contain a kitchen, kitchen pantry, refrigerating rooms, refrigerating machinery and an ice-making plant. Off the kitchen will be a serving-room for the adjacent dining-room for servants, and from this serving-room the dumb waiters will carry food to the floors above. In the easterly part of the basement will be a large laundry, with every modern appliance, and in connection with the laundry there will be rooms respectively for clean linen and soiled linen. In addition there are to be in the basement sleeping quarters for the engineer, numerous toilet-rooms, storerooms and space for the elevator and elevator machinery.

"The first story of the building will be slightly above the level of the grade of Mt. Auburn Street and will have an extension on the front, one story in height, which, under a new arrangement, will be used as the main entrance for the reception of patients. At present, patients, even those in ambulances, have to be taken through the entrance of the administration building. Hereafter, this entrance will be for visitors and doctors only.

"From the patients' entrance there will be an examining-room and a waiting-room; and adjoining the examining-room will be an alcove room for a doctor's desk and the storage of records. On the opposite side of this entrance a large new accident room will be situated. The accident room will be well lighted by north windows and will be connected with a service-room, a sterilizing-room, a recovery-room, and a toilet-room. Occupying a part of the ground story and in connection with the basement laboratory of the present operating building will be a new pathological laboratory. In the westerly portion

of the ground story will be a nurses' dining-room with windows on three sides. This room will accommodate forty nurses; and adjacent will be the dining-room for internes, both rooms being convenient to a serving-room across the corridor. Included on this floor also will be the general pharmacy for the hospital. The central part of this story and the part over the laundry in the eastern wing will be devoted to quarters for the women servants, besides a housekeeper's suite containing parlor, bedroom and bath. For the accommodation of the servants there will be seven private rooms and a parlor, in addition to a large dormitory, arranged on the cubicle system. This dormitory will hold eighteen beds, and each occupant of the dormitory will have a separate locker. There will be toilet facilities in connection with the rooms and dormitory.

"On the second floor of the new building, men patients will be cared for and there will be quarters also, for the internes and orderlies. Besides other rooms, there will be on this floor four single rooms and one double room for surgical cases. In the open ward will be provision for ten beds for surgical cases and near by a solarium will accommodate from six to eight beds more. Connected with the other parts of this floor there will be a diet kitchen and duty-room, locker-rooms, linen closets, and bathrooms and toilet-rooms for nurses and patients. Five rooms and a parlor for internes and four rooms for orderlies lead from the same corridor, and each of these groups of rooms has separate toilet-rooms and bathrooms.

"The third floor—the top story of the new building—will be for women, and there they will have an open surgical ward in addition to private room accommodations, on the same plan as the men's ward and rooms on the floor below. The easterly wing of this story will be used for the maternity hospital. It will be shut off from the other wards, and will have its independent service and toilet facilities. The open maternity ward will contain beds for six patients and there will be also three private rooms for maternity cases. The remainder of the space in the maternity hospital will be used for an operating-room, a sterilizing-room and a crib-room.

"Arrangements for caring for obstetrical cases, such as are thus provided, will no doubt be appreciated by the citizens of Cambridge. The city only briefly has been taken care of in this respect. For a time, two or three years ago, the Charlesgate Hospital maintained a maternity hospital on Magazine Street and the Cambridge Relief Hospital has taken occasional cases, but not until now has there been provision for permanent and modern facilities for the care of women in child-birth; and the result has been that numerous cases have been taken to Boston hospitals.

"The new addition to the Cambridge Hospital will be built of red brick laid in Flemish bond, with trimmings of concrete stone. The interior will have reinforced concrete beams and floor slabs, and at each end there will be fireproof stairways running from the basement to the top story. These stairs will have slate treads and iron risers. A flat roof, with ample air space, will be above the ceiling of the topmost story. The building will be heated by direct steam and all wards and sleeping rooms will have supplies of warm, fresh air furnished independently by the fan-ventilating system in the basement. Moreover, exhaust flues will be provided for all rooms which have the air supply, including toilet-rooms, bathrooms, duty rooms, diet kitchens and locker-rooms. These exhaust flues will converge in the floor-space, where steam-aspirating coils will extract the foul air and force it through the ventilating houses above the roof. All fresh air supplied the ventilating system will be taken in through a copper shaft in the north face of the building and will be thoroughly filtered through cotton bag strainers before being delivered to the fan for circulation.

"Besides the addition to the hospital, a new power building is to be constructed east of the ward and service building. This power house will contain the heating plant for the entire hospital, except the nurses' home, and the present heating plant in the basement of the administration building will be removed. There will be ample coal pockets underground between the power house and Mt. Auburn Street and coal delivery wagons can readily discharge their loads through coal holes. The power house will contain also a pump room and the main switchboard and metering system for the electric current for power and lighting."

The cost of this extensive addition, about $120,000, will be met from a fund given by the late Mrs. Fisk-Collard of New York.

PORCELAIN DOMESTIC FILTERS.

At the recent Congress of Applied Chemistry, in New York, Dr. M. H. Hinard, of Paris, read a paper describing his experiments with porcelain domestic filters for drinking-water:

"The prime difficulty in such filters has been the penetration of the mass by the impurities, requiring a cleansing from time to time. If the filter is very porous it will require the 'regeneration' more frequently. The change that has been made that seems to add efficacy and life to porcelain filters is the substitution for the older material of a porcelain of silicate of magnesia. This material is distinguished by the fineness, regularity and greater number of the pores. Under these conditions the invasion of the material by bacteria is so slight that the mere brushing of the surface of the filter is sufficient to renew it. The speaker brought to notice a newer manufacture of filters of the same material which he had himself used under the pressure

of the municipal supply of water in Paris. It was kept running night and day and during the two months and one-half of the experiment was never cleansed. The flow diminished from the first larger quantity to a normal, which was thereafter continued till the end of the run. Bacterial tests were made from time to time, the content of the unfiltered water of Paris being taken on the same day. The latter showed counts from fifty-five to twelve hundred bacteria per cubic centimetre; the filtered water, none whatever. The supply was then tampered with by introducing a culture of colon bacilli 345,000 to the cubic centimetre, but the filter without any cleansing strained them all out and the output continued sterile after the filter had again been put under city pressure, the experiment being continued about a week longer. A section was then made of the filter and its interior proved to be perfectly clean, although the surface showed a thick deposit of compact and coherent slimy material. This was easy to remove, however, by means of a wad of cotton, restoring the surface nearly to its original appearance. Dr. Hinard characterizes filtration in this way as 'simple, economical, and within the reach of everybody.' "

RESOLUTIONS ON THE DEATH OF DR. MAURICE H. RICHARDSON.

"The Medical Staff of the New England Hospital for Women and Children, in their meeting of Sept. 5, 1912, passed the following resolutions:

"Resolved, that the Medical Staff deplore the death of Dr. Maurice H. Richardson, Consulting Surgeon to the New England Hospital since 1888. In the deprivation of his valuable counsel and genial friendship they suffer double loss.

"Resolved that a message of profound sympathy be sent to his family.

"Resolved, that a copy of these resolutions be sent to the Board of Directors of the Hospital and be published in the BOSTON MEDICAL AND SURGICAL JOURNAL."

Per E. F. POPE,

Sec'y Medical Staff of New England Hospital.

NOTICE.

MASSACHUSETTS GENERAL HOSPITAL.—Members of medical profession are invited to attend the Ether Day address by Dr. William J. Mayo. Subject: "Contributions of the Nineteenth Century to a Living Pathology," on Oct. 16, 1912, at 4 p. m. Admission will be by ticket only. Application for tickets should be made to Dr. Frederic A. Washburn, Resident Physician, Mass. General Hospital.

APPOINTMENTS.

DR. GEORGE GRAY SEARS, of Boston has been appointed clinical professor of medicine in the Harvard Medical School, from Sept. 1, 1912.

DR. SAMUEL J. ROBINSON, of Boston, has accepted the Appointment of Dean of the Clifton Springs Sanitarium and Hospital under the directorship of Dr. James G. Mumford with whom he is to be associated in the surgical work of the hospital.

RECENT DEATHS.

DR. HENRY FISKE LEONARD, of Boston, who died on Sept. 24 at Worcester, Mass., was born at Sturbridge, Mass., on Dec. 18, 1858. He received the degree of M.D. from the New York College of Physicians and Surgeons in 1879, and in 1881 settled in the practice of his profession at Boston, where he continued until his retirement in 1910. He was for nine years a lecturer in comparative anatomy at the Harvard Medical School. He was a member of the American Medical Association, and of the New York Academy of Medicine, and a Fellow of The Massachusetts Medical Society. He is survived by his widow and by one son.

DR. MONROE L. VANSANT, who died last week at Philadelphia, was born in 1821. He began the practice of his profession as a dentist in 1852, and continued until his retirement in 1903. He is survived by one daughter and two sons, one of the latter a physician.

BOOKS AND PAMPHLETS RECEIVED.

Chronic Visceral Pain in Relation to Surgery and Psychotherapy, by Tom A. Williams, Washington, D. C. Reprint.

A Case of Crossed Heml-Dysergia and Tremor, with Asynergia of Binocular Movements, by Tom A. Williams, Washington, D. C. Reprint.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, SEPT. 21, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	9	1
Chicago	594	215	Waltham	4	1
Philadelphia	—	—	Brookline	5	—
St. Louis	—	—	Chicopee	9	6
Baltimore	—	—	Gloucester	—	—
Cleveland	—	—	Medford	6	2
Buffalo	—	—	North Adams	13	0
Pittsburgh	—	—	Northampton	6	0
Cincinnati	—	—	Beverly	8	1
Milwaukee	—	—	Revere	2	—
Washington	—	—	Leominster	2	—
Providence	—	—	Attleboro	2	1
Boston	215	75	Westfield	11	4
Worcester	45	17	Peabody	—	—
Fall River	40	22	Melrose	2	—
Lowell	38	15	Woburn	5	2
Cambridge	32	14	Newburyport	3	1
New Bedford	34	20	Gardner	—	—
Lynn	—	—	Marlboro	1	1
Springfield	—	—	Clinton	1	—
Lawrence	22	10	Milford	—	—
Somerville	18	4	Adams	—	—
Holyoke	17	7	Framingham	—	—
Brockton	9	4	Weymouth	—	—
Malden	13	5	Watertown	2	0
Haverhill	6	2	Southbridge	4	2
Salem	17	5	Plymouth	—	—
Newton	9	1	Webster	7	1
Fitchburg	—	—	Methuen	—	—
Taunton	23	4	Wakefield	—	—
Everett	5	1	Arlington	3	1
Quincy	—	—	Greenfield	—	—
Chelsea	10	3	Winthrop	2	—

Original Articles.

THE SURGICAL ASPECTS OF FAT.*

BY J. M. T. FINNEY, M.D., BALTIMORE, MD.

THE subject matter with which this paper deals may appear to some of my audience rather common-place. However, the wide distribution throughout the body of adipose tissue, makes it a subject of more or less general interest to all medical men. The pathological processes or one sort of another in which fat is concerned, frequently occupy the attention of the specialist as well as of the physician and surgeon. The primary object of this paper is to place on record two or three interesting observations in this direction. I can find no reports of similar cases in the literature. In this connection, it has seemed to the Speaker that a general review of the subject of the relationship of fat, in its various manifestations, to surgery might be of interest. Especially did this appear to be the case when one considers the manifold ways in which in some form or other, fat is concerned in surgery. At first sight, this would appear to be confined largely to the lipomata. While they do furnish possibly the bulk of the material to be studied, still there are many other interesting circumstances under which fat occurs and to a consideration of which we will devote the short time at our disposal this evening.

There are several ways in which this subject can be considered. In the first place, fat may have a definitely beneficial and conservative effect. One has but to recall the classical picture familiar to you all, I am sure, of the thin, neurotic woman with flabby abdominal walls and ptosis of all of her abdominal viscera, often the result of frequent pregnancies, or of some wasting disease. One of the most effective forms of treatment in these distressing cases is to put the patient to bed, overfeed her with a diet calculated to produce as great a deposit as possible of adipose tissue, hoping thereby to anchor the floating kidneys, and splint the other too mobile viscera. The conservative action of fat thus deposited in many of these cases is to a marked degree beneficial. Then, too, in connection with certain operative procedures, for instance the stitching up of incisions in the wall of the ureter or the pelvis of the kidney, the utilization of the fatty capsule, as suggested by Mayo, is often of great advantage. Furthermore, in certain mutilating operations, such as the removal of the breast, neighboring lipomata have been transplanted, and extensive defects thereby repaired. It is, of course, of frequent occurrence in plastic surgery to utilize a thick flap of normal subcutaneous fat to supplement the defect produced by excision of pathological processes, amputations, etc. This is especially true, perhaps, on the sole of the foot, or in the palm of the hand where the fatty pad is of great service in protecting the more sensitive underlying structures. It will thus be seen that under certain circumstances, fat or even fatty tumors may be of direct and real assistance to the surgeon in his efforts to correct defects, and deformities of one sort or another. On the whole, however, the effect of fat is detrimental rather than beneficial to the work of the surgeon, for there are many ways in which its presence is of real disadvantage in case of a surgical operation. It is a tissue feebly resistant to bacterial invasion. It does not heal readily. It is soft and friable and easily torn and injured, leaving particles of loose fat or oil globules between the adjacent surfaces of the wound, and thereby interferes with wound healing. Where the subcutaneous fat is present, in large amount, frequently to the thickness of several inches, particularly in the case of the abdominal wall, it interferes materially with the manipulations of the surgeon, and may necessitate a very considerable lengthening of the abdominal incision. It is only necessary to call to mind the great difficulties not infrequently experienced in the performance of an abdominal section upon a patient, the subject of a well developed panniculus, and whose abdominal organs are encased in a thick coating of fat. In these patients the very presence of the fat in excessive quantity renders them unfavorable subjects for an anesthetic, either local or general, and interferes very materially with the respiration and the heart's action, thereby producing cyanosis, venous stasis and increased hemorrhage, often difficult to control, and thus adding to the length of time and resulting shock of the operative procedure. This picture is not overdrawn, as I am sure every one of you can recall to your sorrow, from your own experience, individual instances just such as I have been endeavoring to describe. Indeed this very condition of adiposity has given rise to certain definite surgical procedures, and the surgeon, after Bantüng, Fletcherizing, the straight front corset and other less widely advertised methods of reducing flesh have failed, has been called upon to remove the offending deposit. Kelly[1] has advocated and performed the operation of lipectomy for the removal of the large pendulous fat pouches so often seen hanging from the protuberant abdomens of some women. He recommends this operation especially, where the condition is associated with umbilical hernia, and also to relieve the patient of the incumbrance caused by the extra weight. He recommends the removal of a large diamond-shaped section of skin and subcutaneous fat extending from one flank to another and down to the aponeurosis, just as one would cut a huge slice lengthwise out of a watermelon. The results reported by him were excellent.

I am sure that all of the surgeons present have at one time or another been consulted by anxious patients with reference to the removal, for cosmetic purposes, of deposits of normal fat on some part of their anatomy.

*Read before The Harvard Medical Society of New York City, on March 23, 1912.

Attention was called above to the fact that fat tissue was particularly slow in healing. This process has been the subject of special study by Marchand and Verebely.[2] A summary of their observations as to the reasons therefore may be of interest here.

The character of the response of any tissue to destructive irritation may be taken as a rough indication of the local resistance of that particular tissue. The healing of the peritoneum, the most resistant tissue within the body, may be taken as a base line. When irritated, it presents a firm fibrous exudate in less than ten hours, and well developed new tissue formation in three days. According to Verebely (Beitrag. z. *Klin. Chir.*, LIV, 1907, p. 320) the only change visible on the surface of fat after forty-eight hours is a little dryness and pallor. On the third day it becomes impregnated with serum, the individual lobules protruding between connective tissue septa. Where there is more translucence, the individual fat droplets are less distinct. By the fifth day, a veil-like fibrinous exudate has developed, which grows progressively thicker, covering the fat lobules, but is avascular, and can easily be removed. Gradually it becomes vascularized and thus the fat is over-grown with granulation tissue by the ninth or tenth day. Grayish-red strands extend downward into the underlying fat rendering it abnormally dense through increase in the connective tissue framework. After fourteen days, the older deeper layers of the granulations begin to become characteristically fibrous with the tendency toward retraction.

Microscopically, two distinct processes are recognizable, one occurring between the fat cells, and merely the usual sequence of changes in the formation of connective tissue, serofibrinous infiltration, cellular migration, budding of capillaries, tissue proliferation, etc. The fat acts in this respect as a benign foreign body. The other process affects the fat cells, directly and indirectly and modifies to some extent the usual granulation tissue formation. These fat cells may promptly become necrotic and be removed by invading phagocytes or undergo more slow degeneration through a substitution of serum for that fat preceding disintegration, or undergo a gradual simple permanent atrophy. In certain of the fat cells, as noted previously by Marchond (*Deutsch. Chir.*, XVI, 1901, p. 135) there occurs a sort of endogenous cell-formation leading to the production of elongated round polyhedral and often multinucleated giant cells which may be enclosed in the original fat cell membrane, or upon its rupture, come into contact with surrounding cells and be incorporated in the developing fibrous tissue. These young cells are finely vacuolated (fat), and Marchond compares their formation to that of the muscle cell within the sarcolemma, though Verebely inclines to a mononucleated leukocytic origin. However, these cells are those probably destined to the new formation of fat.

Before leaving this subject of healing in fatty tissues, there is one very important point that merits emphasis. All have noted when re-operating through a scar, how very little fibrous tissue may be encountered in the one case and how much may be present in another. In the one panniculus is restored, in the other the scar is sunken and not freely movable. Where cosmetic results are most desirable, gentle rotary massage should be begun early, and applied thereafter with increasing vigor, but at the same time due precaution should be taken against spreading the skin scar. If this treatment is persisted in, those fibrous bands extending outward into the fat can gradually be elongated, the whole scar loosened and the development of fatty tissue encouraged to a surprising degree.

Adipose tissue and obese individuals in general are notoriously little resistant to infection. Every surgeon can testify to the correctness of the experimental observations that showed subcutaneous fat to be the least resistant tissue in the body. Relatively poor in blood supply, mechanically unprotected and, as will appear later, having but restricted powers of defense or repair it is perhaps remarkable, all things considered, how few surgical wounds do break down.

The effect of traumatism upon fat is of considerable surgical significance since healing and liability to embolism are thereby materially influenced. A simple uncomplicated incised wound extending into fat, is prone to heal kindly, with but little and transient induration sub-cutaneously. The smaller the fat cells, *e.g.* in the fingers and toes, etc., and the less the trauma, for instance the crushing by retractors, the more kindly the repair. One needs but to recall the quite aseptic discharge of oil globules and serum, which indicate non-union, in the panniculus after laparotomy, when forcible retraction has been used, to remember the frequently long-delayed healing under such conditions.

Possibly more important still, because it involves life rather than a complication of convalescence, is the question of fat embolism. Non-surgical traumatism, particularly of a crushing nature, affecting bones, fatty livers or less commonly, any other fatty accumulation, may lead to fat embolism of the pulmonary capillaries, less often those of the heart, brain and kidney. The majority of such emboli must be of little importance since they have been shown to occur with epileptic and eclamptic convulsions, and are not reckoned among the many dangers of modern surgery. Some fat embolism is said to be constantly found in the pulmonary capillaries after simple fractures, in post-mortem examinations when death was attributable to other causes, (Bergman, *Berl. Klin. Woch.*, XLVII, 1910, p. 1113), also that it may be independent of bone injury, and to have been present in upwards of ten per cent. of cases in series of unselected autopsies.

Surgical traumatism leading to fat embolism

may be nothing more than the division of a thick panniculus, omentum or mesentery, but usually it is far more forcible, and most frequently the cause is too energetic handling of tissues; manipulation of joints, particulary braisment force, especially if the joint has been long immobilized and the bones, therefore, have become abnormally fatty.

The symptoms are either immediate, *i.e.* occur during the first few hours, or else after several days. Adami (*Principles of Path.*, N. Y., 1909, vol. II, p. 54) explains the process as follows: "Immediate plugging of the fine pulmonary capillaries even when leading to small infarctions, is of no serious import, but when the consequent circulatory obstruction embarrasses the heart, there may follow severe, even fatal, dyspnea. Later the fatty plugs, partially saponified or diminished by phagocytosis, become loosened and pass on. The occurrence of contracted pupils and Cheyne-Stokes respiration indicate that fat has passed to the cerebral capillaries."

The mechanics of fatty embolism is important in teaching how it may be avoided. Bergman grants the possibility of transmission via the lymphatics as observed experimentally by Busch in regional lymph glands, (*Virch. Arch.*, 1866, XXXV, p. 321) and clinically by Wilms (*Semaine Med.*, XXX, 1910, p. 138) in the thoracic duct, but considered this as insignificant compared to direct entrance of fat into the blood stream. This can take place when the veins are held open, and a *vis á tergo*, resulting from the presence of hemorrhage under tension, forces the dislocated fat into the blood stream, conditions fulfilled in certain bone injuries.

Ribbert (*Deutsch. Med. Woch.* XXVI, 1900, p. 411) concluded from experimental studies that embolism was dependent upon concussion of bone incidental to fracture, and that no embolism arose from the site of fracture.

Frischmuth (*Inaug. Dissert. Koenigsburg*, 1909) confirmed these observations and in addition showed that embolism might result if a fracture without concussion occurred through spongy ends of bone, rich in fat.

Bergman agreeing with these opinions, thinks crushing of bone more significant than concussion, otherwise mere use of a chisel would be dangerous, but that any concussion severe enough to dislodge fat would be accompanied by vascular injury.

Serious embolism may be considered as liable to follow the crushing of bone, more rarely of soft parts. The transmission is usually directly into the blood stream unless as Riedel (*Deutsch. Zeit. f. Chir.* VIII, 1877, p. 57) has suggested the lymph path leads directly to the thoracic duct, without intervening glands to act as filters.

In determining as to the advisability or not of undertaking a surgical operation, as bearing directly upon its prognosis under certain circumstances, due regard should be taken of the presence of certain changes in the parenchyma of the heart, liver, kidney, etc., and which are known as fatty degenerations. Excluding fatty infiltration and those forms of fatty degeneration, approximately physiological, *i.e.* associated with lactation, interest centres in two distinct groups, (a) those which may be relieved and (b) those which may be intensified or even provoked by surgical therapeutics. In the first class belong the results of bacterial intoxication with or without pyemia, long continued high temperature and ultimately, most forms of auto-intoxication. In all probability, under these conditions, the fatty changes are preceded by parenchymatous irritation. Rarely is proper significance attached to the really malign effects of fatty degeneration of this type, it is so much easier to consider the more engrossing and quite indefinite question of tissue resistance without regard for any of its compound factors which should never appear insignificant enough to merit disregard.

Intoxication of non-bacterial nature, arsenic, antimony, carbon monoxide, mineral acids, chloroform, phosphorus, etc., states of malnutrition, severe anemias, primary or secondary, lead to fatty degeneration. According to Adami (*Principles of Pathology*, 1910, vol. II, p. 910) this may be preceded under these conditions by parenchymatous degeneration but this has not been established. Unpublished experimental work has shown that in rabbits chloroform, ether and oxygen and opium when given for physiological results cause a definite cloudy swelling in the tissues mentioned that may go on to fatty degeneration. Every effort should be made to determine what method of anesthesia is least apt to overload a weakened individual, particularly so long as it remains impossible, even approximately, to estimate the degree of this handicap.

Necroses occur in fatty tissue in addition to the usual causes of failure of blood supply and irritation in three striking forms, (a) one resulting from acute pancreatitis through the liberation of fat-splitting enzymes seen so commonly in the omentum as to be pathognomonic and exceptionally also in the subcutaneous fat. (b) That peculiar fatty necrosis exhibited by individuals manifesting carbolic acid idiosyncrasy in gangrene and characterized by tough, dirty, yellow sloughs. (c) That resulting from long continued application of ice to the abdomen as in the case of the ice bag for appendicitis.

In 1892, Dercum described a condition which presented certain well defined characteristics, chief of which are pain and an excessive deposit of fat, more or less generally, but irregularly, distributed throughout the body. To this syndrome, he gave the name of "adiposis dolorosa." Later, Vitaut added two other symptoms which he believed to be fairly constant and distinguishing, namely, asthenia and certain psychic manifestations. Vitaut's classification has since been pretty generally adopted. Dercum believed this syndrome to be a definite entity and fairly constant in its appearance. Lyon,[3] however, in

1910, in an exhaustive monograph on the subject, after reporting a group of atypical cases, combats this view, and questions the propriety of raising the syndrome to the position of a true entity. He groups together a variety of conditions associated with abnormal deposits of fat, namely, Dercum's disease; simple adiposity or obesity, nodular circumscribed lipomatosis; diffuse symmetrical lipomatosis, including the "fat neck" of Madelung; neuropathic edema, pseudo-edema, pseudo-lipomata; lipoma-adipositas cerebralis, including Frolich's syndrome.

"These several clinical groups are compared with one another and especially with Dercum's syndrome, in reference to their clinical symtomatology, constitutional relations, pathology, etiology and treatment. In these respects, they are thought to be not only closely related but essentially identical, being only variations of a common morbid process. They do not constitute clearly defined entities, but rather varieties, phases or case groups of a common morbid process. They often blend with one another and exhibit common features so that individual cases cannot be exactly classified in any single group." (Lyon.)

He also calls attention to the fact that all the groups show a strong tendency to be characterized by constitutional symptoms, embracing a wide variety, such as psychic, sensory, motor, vaso-motor, secretory and trophic manifestations. Special attention is called to various arthralgic and arthritic, neuralgic and neuritic manifestations as belonging to the constitutional symptomatology of the morbid process.

As etiological factors, disturbances of the nervous system or of the glands of internal secretion have been suggested. Pathological findings would rather tend toward corroborating the latter view. Treatment is unsatisfactory. Surgically, its effect is chiefly cosmetic, or confined to the removal of painful deposits of fat.

Under this general heading, I am inclined to think there must be classed the group of cases of my own to which reference was made in the beginning of this paper, no similar instances of which I can find reported. I have observed three cases almost identical in history and clinical findings. A brief summary of two of these cases is here presented. I may add that the general clinical characteristics of this particular group are well marked abdominal symptoms, suggesting gastric or duodenal ulcer or gall-stones, abdominal pain and tenderness, unilateral, affecting the right side and associated with a marked deposit of fat in the mesentery, particularly of the ascending and transverse colon and the omentum Microscopic examination of the fat removed shows nothing abnormal save an excess of fibrous tissue and evidences of old hemorrhage.

CASE No. I. Mr. H. F. L., aged 30 years. Entered the Johns Hopkins Hospital Nov. 17, 1909, complaining of distress after meals and gas on the stomach. His family history was negative and with the exception of the fact that the patient had to travel a great deal and, therefore, eat very irregularly, his personal history was negative.

Present Illness.—Patient had pain after meals for four or five years, which came on about fifteen minutes after taking food and lasted until the next meal. One year previous to his admission he was suddenly seized with a pain in the right side, accompanied by vomiting. This was of short duration however. Patient was usually constipated. He was rather stout, for which he began to diet and had lost thirty pounds in four years. Upon examination, it was found that the abdomen was large and prominent. Walls very thick. No mass could be felt, but above the umbilicus there was definite tenderness accompanied by a slight rigidity. A test breakfast was negative. Examination of stools negative. Diagnosis uncertain. Exploratory incision advised. At operation through a right rectus incision, it was found that the mesentery appeared everywhere thicker and fatter than normal. This was particularly noticeable in the mesentery of the transverse colon and omentum, especially the right half of these structures, producing the effect of a marked lipomatosis which ended abruptly just to the left of the mid-line, beyond which point the fatty development was about normal. The abdomen was closed without doing anything and the patient made a good recovery from the operation. He has recently reported that he has the same general symptoms as before, but not quite so severe.

CASE No. II. Mr. W. R., Nov. 11, 1911; referred to me by Dr. Thomas R. Boggs. Complaint, stomach trouble.

Family History.—No serious illness in his life. Has worked hard. Weight has increased in the past two years.

Present Illness.—Eighteen months ago began to have pain in the epigastrium, three to four hours after meals. No nausea or vomiting. Relief by eating or drinking. The frequency of the pain gradually increased during the last six months. Occurs almost daily. Temporary relief from sodium bicarbonate or from taking food. Pain has become more marked to the left of the epigastrium and into the hypochondrium. There is no special tenderness, no discomfort from clothing. No constipation. Takes meals irregularly and bolts his food.

Physical Examination.—Well nourished, slightly pallid. Abdomen shows a good panniculus. Slight general tenderness over the epigastrium and hypochondrium; more marked to the left. Gastric tympany slightly increased. Does not extend below the umbilicus. There is no muscle spasm or rigidity.

Admitted to the Church Home and Infirmary Nov. 14, 1911. Gastric analysis normal. Diagnosis uncertain. Exploratory incision advised.

On incision preperitoneal fat noticed to be excessive.

On opening abdomen first object presented was markedly thickened omentum; on lifting up found the edge to be curled up, thickened and adherent to transverse colon, most marked at right side, gradually lessening toward the left until nearly relative normal omentum was reached at the extreme left border.

This fatty condition found to involve mesentery of large and small bowel on right side.

On mesentery it assumed a granular appearance and more characteristic of an ordinary lipoma, the lobules of which are rather coarse.

Gastro-colic ligament many times normal thickness.

Pylorus found tucked well under the liver toward the right side and difficult to expose.

No evidence of recent or old ulcer on gastric or duodenal side.

Anterior wall of stomach especially in the lesser curvature, but present in both curvatures, was very marked varicosity, some veins being one-half cm. in diameter. No evidence of gastric ulcers, recent or old.

Pancreas firm, not enlarged.

Gall bladder and ducts present no stone, apparently normal.

Appendix felt but not seen; apparently normal. No other abnormality made out.

Right half of omentum with part of left excised close to the colon.

Pathological Report.—Microscopical examination of the specimen of omentum removed showed for the most part pure fat. There were, however, a few scattered areas of old hemorrhage, very old, that at first sight looked a bit like a malanotic sarcoma. Careful examination, however, showed them to be only the remains of an old hemorrhage. Nothing else abnormal.

Lipomata. The characteristics of lipomata in general are too well known to require any extended description here. They are simply reproductive of normal fatty tissue with certain slight changes. The fat is usually paler, the lobules larger and they appear to be parasites, to the extent of growth at the expense of the body fat. Virchow first called attention to the fact that lipomata never decrease in size or disappear along with the normal fat in case of great cachexia in wasting diseases. They are lobulated, soft, doughy, pseudo-fluctuating and inelastic. In shape, they are ovoid, spherical or flat, commonly sessile and rarely pedunculated. When encapsulated, as they usually are, the capsule is thin. When no capsule is present, they are described as "diffuse lipomata." A familiar instance of this variety is the "fett-hals" of Madelung. They are usually single but not infrequently multiple and in some reported instances, are present in great numbers. At times a tendency toward symmetrical development on both sides of the body has been noted. They are usually of spontaneous development but in rare instances, have been of congenital origin. They are more commonly noted in women than in men and are most frequently met with in adults between the ages of thirty and fifty years. Widely distributed throughout the body, and found practically everywhere, they nevertheless show a predilection for certain localities. With the exception of the sarcomata, the lipoma is perhaps the most generalized tumor which occurs in man and is certainly one of the most common occurrence. Coplin[4] calls attention to an interesting phenomenon occasionally observed in fatty tumors named "gravity wandering." "This feature may be present in tumors developing in the sub-cutaneous tissue, and possessing slight attachment to surrounding structures." This peculiar property of locomotion has been observed in a number of instances by the writer and attention called thereto. The distance traveled and the rapidity of movement of the growth are largely influenced by the firmness of attachment to surrounding structures and by anatomical relations.

Various theories have been advanced as to the origin of lipomata. It is probable that many develop from misplaced germinal tissues. Hereditary influences must also be considered, while symmetrical lipomata are thought by some to suggest a trophoneurotic origin. Repeated trauma and long continued irritation may possibly account for a certain number. Lipomata occur relatively infrequently as pure fatty tumors, more often in combination with other structures, *e.g.* fibre, chondro, osteo, myxo, cholesto and angio lipomata. Rarely they have been described as combined with sarcomatous-appearing tissues. They are subject to the same degenerative changes observed in normal fat, namely softening and cyst formation, infection, necrosis, gangrene, calcification, etc.

Lipomata are certainly to be classed as benign tumors, but now and then in certain individual cases, they exhibit phenomena which closely resemble malignancy.

Such a case has recently been reported by Proesler and Meredith (*Surgery, Gynecology and Obstetrics*, 1909, vol. ix, p. 578) in the person of a married woman, aged 32 years, who for eight years had had a small tumor situated in the right upper calf. It had not grown or caused any trouble during all this time. Then a small tumor developed in the left groin, and another in the left breast. At the same time her abdomen began to be perceptibly larger, due to an intra-abdominal growth. The growth in the breast was removed, and found to be lipoma. In rapid succession then tumors appeared in the right leg, left thigh, left breast and in the abdominal wall. These grew rapidly until they attained the size of a hen's egg. The abdominal swelling also increased greatly in size. There were no subjective symptoms. Six months later the abdomen was opened, and a large fatty tumor having its origin in the mesentery was removed, together with six or eight inches of intestine, owing to disturbed blood supply.

Pathological Report.—Myxo-lipoma.

In a few months abdominal tumors reappeared, associated with ascites. This increased until it reached the size of a full term pregnancy. Marked edema of legs, emaciation, etc. Five quarts of straw-colored fluid were removed from the peritoneal cavity by tapping. Patient finally died a few months later from emaciation.

Autopsy showed that each tumor had a well defined capsule. No typical metastatic deposit by way of blood from lymph channels. No infiltration or destruction of normal tissue. All the tumors developed in the sub-cutaneous or sub-serous fat. The malignant qualities exhibited were rapid growth, local recurrence and mechanical interference with the normal functions of the body. No emboli were found in the viscera. Microscopic ex-

amination showed tumors to be lipo-myxomata. Certain differences were observed in the cells as compared with the ordinary fat cells. The clinical picture was that of malignant disease.

As has been said before, lipomata may be found in any part of the body where adipose tissue is normally present and in some instances where it is not, *e.g.* bone, muscle, brain, testicle, etc.

Anderson[5] divides abdominal lipomata into three groups, (1) the retroperitoneal which may become mesenteric, mesocolic, omental or parametric. (2) hernial which may show themselves through the usual openings of the abdomen, the inguinal, femoral, umbilical, etc., or through the linea alba and other locations. (3) intra-peritoneal after the manner of appendices epiploicae. To this we would add a fourth variety, namely (4) the intra-intestinal or the sub-mucous lipoma. Interesting examples of all of these varieties have come under our personal notice and a brief report of cases observed is here sub-joined. The speaker will never forget an instance of large retro-peritoneal lipoma occurring in a middle-aged woman in the service of the late Dr. John Homans while he was a surgical interne in the Massachusetts General Hospital, over twenty years ago. This case was subsequently reported by Dr. Homans along with a similar one. The diagnosis had not been made before the operation. The condition was supposed to be a cyst of the ovary or of the broad ligament. The operation was a very difficult one and in the course of it what was supposed to be the right common iliac vein, was torn across with a resulting extensive and alarming hemorrhage. This, however, was finally controlled and the patient made a good recovery.

Vegesack[6] in a recent exhaustive article on the subject of retro-peritoneal lipomata, reports a case of his own, in a woman aged fifty-seven years. The tumor was the size of a child's head, painful, and had existed for two or three years. It was supposed to be a tumor of the left kidney. It is an interesting fact that in the course of this operation and while the tumor was not connected with it except by adhesions to its upper pole, the kidney was so badly injured during the manipulation and removal of the tumor, that it necessitated a nephrectomy. The patient made a good recovery. The specimen was interesting in that it contained a rather large-sized cyst, full of thin oily fluid, and in certain areas a collection of spindle-cells, which were considered a spindle-celled sarcomata. Vegesack was able to collect from the literature one hundred and nine cases of retro-peritoneal lipomata. These were not all pure lipomata. Some were combined with myxomatous, fibromatous or sarcomatous tissue. Of ninty-seven cases in which the sex was mentioned, seventy-two were women and twenty-five were men. It occurred most frequently between the ages of thirty and seventy years. The tumors were usually single, rarely multiple. A tendency toward general lipomatosis was observed in a few instances. In one case, beside the lipomata, there were present two other tumors, both fibromata. In eight cases, recurrences were noted, one being sarcomatous. The symptom-complex is similar to other large abdominal tumors. The patient complains of weakness, nervousness and insomnia, palpitation and depression. The tumors are apt to be painful with the pains radiating into neighboring organs, the liver or kidney, or down into the lower extremities. When the size becomes excessive, pressure symptoms are to be observed, constipation, dyspnea and edema. Finally, as the increase in growth of the tumor takes place, there is coincident loss of flesh and general wasting, suggesting malignancy. In only two instances out of the one hundred and nine, was a correct diagnosis made, cyst of the ovary being usually mistaken for it, and next to this, tumor of the kidney. The only treatment for these cases is extirpation, by the trans-peritoneal route, sometimes a most difficult procedure, owing to the lack of encapsulation and the frequently enormous size and vascularity of the tumor. The mortality is high, thirty-eight per cent., due to the percentage of peritonitis in the early pre-antiseptic cases, and to the danger of wounding the neighboring structures, ureter, kidney, intestine, great vessels, etc. In six cases, the healthy kidney was removed on account of injury at the time of operation.

The second or hernial variety includes the umbilical, inguinal and femoral lipomata, several interesting examples of which have been observed by the speaker. In one instance, a small pedunculated lipoma at the umbilicus had become twisted upon its pedicle, giving rise to the classical symptoms of intestinal obstruction. Operation revealed a small lipoma, black from strangulation of its pedicle. No sac was present. In another instance, a long sausage-shaped lipoma occupied the inguinal canal of a woman. This presented all the classical phenomena associated with omental inguinal hernia. In the recumbent posture, the lipoma would disappear into the abdomen, to reappear when the patient assumed the erect posture. Operation revealed the presence of a lipoma. A similar case was observed in a man, except that in this instance the lipoma occupied the femoral canal instead of the inguinal. In neither case was there any vestige of a hernial sac. A mistaken diagnosis of hernia had been made in each case.

A most unusual instance of the third variety of abdominal lipomata was observed in the person of a patient, a medical man.

Dr. E. P. A., aged 38 years. Married. Entered the Union Protestant Infirmary Feb. 23, 1910, complaining of abdominal pain and bloody stools. His family and personal history were negative. For ten years he had been suffering with nausea, vomiting and bloody stools, and for two or three years with recurring severe attacks of abdominal pain which, beginning in the region of the appendix, would shoot across the abdomen to the left side.

This pain was sometimes so severe as to cause him to faint. The attacks usually passed off in two or three hours, leaving a soreness lasting for twenty-four hours. These attacks occurred usually at night and in every instance were accompanied by a movement of the bowels in which blood was not always present. Between the attacks, which occurred at intervals of about six months, the patient was comparatively well, although always more or less uncomfortable and tender in the left iliac fossa. For the last four or five years, the patient has suffered a great deal from gas in the intestines (this often being his most disagreeable symptom). Examination showed nothing except tenderness upon pressure and an indistinct mass in the left iliac fossa. The patient was a large and heavily built man.

Diagnosis.—Diverticulitis.

At operation, through a left incision, the sigmoid was delivered and in its lower ten inches found to be thickened and rather firm to the touch. Situated along its inner border were numerous large and branching epiploicae of dense firm fat. Its mesentery was also greatly thickened with similar deposits of fat. A resection of the affected portion was done. A lateral anastomosis was then performed and the patient made an uninterrupted recovery and has since remained well. Examination of the specimen showed nothing but overgrowth of fat. No evidence of inflammation or ulceration, no thickening of bowel wall.

Of the fourth or sub-mucous variety of intra-abdominal lipoma, the following is a typical example:—

Mr. J. D. W., aged 35 years. Married. Entered the Union Protestant Infirmary Jan. 10, 1911, complaining of pain in the abdomen and bloody and mucous stools. Family and personal history were negative. Five years previous to admission after having eaten a very hearty meal, patient was seized with a severe pain in the abdomen accompanied by diarrhea. The stools were streaked with blood. Most of his pain was along the left side of the abdomen, where the patient thought he could feel an indefinite mass. In two or three days the trouble subsided but he continued thereafter to have similar attacks at frequent intervals. He never passed much blood, but considerable mucus. Upon admission the pain was referred just above the rectum and in the back. Examination revealed nothing definite. The patient held his muscles so rigidly that satisfactory palpation was impossible. There, however, seemed to be slight tenderness along the left side of the abdomen. Examination of the stools showed them to consist almost entirely of mucus streaked with blood. No parasites. Tuberculosis of the bowels was suspected on account of family history and association. Tubercle bacilli were found by Dr. Simon in the stools. At operation, Jan. 19, 1911, a mass was found occupying the lumen of the descending colon just above the sigmoid flexure. Its nature could not be determined, but there was evidently a partial intusseption, which could not be reduced. Resection of this portion of the bowel was done, together with that part of the gut from the sigmoid to the transverse colon just proximal to the splenic flexure. A lateral anastomosis was made. On opening the resected bowel after its removal, the mass was found to be a lipoma of the mesentery which had become invaginated into the bowel, almost obstructing its lumen. There was in addition considerable ulceration of the mucosa just over the mass, thus accounting for the bloody stools.

Ehrlich[7] in a recent article has collected fifty-two cases of submucous lipoma of the digestive tract. These are distributed as follows: three in the stomach, six in the duodenum, six in the jejunum, nine in the ileum, twenty-four in the big gut, cecum, sigmoid and rectum. In four cases, the site was not given. More than one-half were found at autopsy, death being due to something else. Resection was performed eight times. Invagination of the vowel wall was observed in seventeen out of thirty-three cases, owing to the tumor having become pedunculated. Occasionally they are discharged per rectum.

Although they are rare, lipomata have been observed arising from the pleura and in the bronchi. Chiari[8] in 1883, observed at autopsy a tumor consisting of a mixed lipoma, chondro and adenomatous tissue which had encroached upon a bronchiectatic cavity.

Strange as it may seem, even the heart is at times the seat of a lipomatous growth. Verliac[9] and Morel, in 1909, in an article entitled "A Study of Lipoma of the Heart" reported one case of their own and collected eleven others from the literature, making twelve in all. They concluded that lipoma forms one-fifth of all of the tumors of the heart, fibroma being most frequent of all. Of these twelve cases, none was diagnosed, all being found at autopsy. Only one of the patients had a known lesion of the heart during life, and that one had only a slight systolic murmur. In but one of the twelve instances was death actually due to the lipoma. In this case, the tumor was pedunculated and suddenly obstructed the auriculo-ventricular ring. In all of the other cases, the tumor was sessile and gave rise to no symptoms. Most of the cases occurred in aged people, one in a child of seven months and another in a patient aged sixteen years. The sex was equally divided.

Histological examination made in seven instances showed four to be pure lipomata, one a fibro lipoma and two myolipomata.

The following is a rather unusual location for a lipoma, namely, the larynx. Goldstein writing in the *Laryngoscope* in September, 1909, reviewed twelve cases reported in the literature, and recites one personal case in which a dozen lipomata of large size were successfully removed form a patient's larynx under local anesthesia. The patient had complained for about fifteen years of almost constant discomfort in speech and respiration, culminating in marked dyspnoea.

It sometimes happens that lipomata may occur in the muscles. Such an instance is the following reported by Kolaczek.[10] A woman, aged fifty-three years, was operated upon in 1907 for

carcinoma of the uterus. One year later, she returned because a tumor which had been present for over a year in the left thigh, had begun to grow. At operation, it turned out to be a lobulated yellowish lipoma-like tumor springing from the adductor group of muscles. Some of these lobules were made up of pure cartilage, while others were pure fatty tissue. The author thought that the cartilage arose from the connective tissue. The diagnosis was chondrolipoma.

Somewhat related to the intramuscular are the intermuscular lipomata, 23 of which were reported by Huge (*Cent. f. Chir.*, 1909, XXXIV, p. 311). In 1907 Bloodgood tells of removing a lipoma situated between the pectoralis major and minor—also one from the popliteal space (*Prog. Med.*, Dec. 1, 1907, p. 215).

Lipoma aborescens. This interesting affection, first described by Müller, was emphasized and its pathology studied by Hoffa and his assistant, Becher, in 1904, and later discussed and well illustrated in an interesting monograph by the late C. P. Flint[11] of New York. This condition is most frequently met with in the knee-joint where it appears to reach a greater stage of development than in any other. It must be looked upon as a form of traumatic arthritis, at any rate, it usually follows as a result of trauma, either slight or severe, although Adami calls attention to its frequent association with arthritis deformans and tuberculosis. There may be a single lipoma, a few villi or the entire joint may be filled with these fatty fringes closely interlocked with each other. They are most frequently found in the region of the patella ligament. Clinically, the symptoms may be either mild or of great severity. Effusion, sometimes in large amount, may be present in the joint. It is usually serous in character but may be bloody. Soft masses may be felt upon palpation on either site of the patella ligament. The synovial membrane may be considerably thickened. A soft crepitus may be felt and the symptoms not infrequently suggest a loose cartilage.

Lipomata of the spermatic cord are quite rare but in 1910 Beresnegowsky[12] was able to collect thirty-three to which he added one case of his own, making thirty-four cases in all.

Equally rare or perhaps rarer, certainly more extraordinary, are lipomata of the brain. It would seem as if this one locality of the body would be free from these growths yet they do occur, being, however, always in association, to a greater or less degree, with the meninges.[13],[14]

There are many other ways in which fat in some form or other concerns the surgeon, but I fear that I have already wearied you with this too long recital of some of its manifestations. The purpose of this paper will have been accomplished if thereby the speaker has been able to show that even so common-place a structure as fat, may, under certain circumstances, possess features of unusual interest to all medical men, but especially to the surgeon.

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NORWAY REVISITED.

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THREE years ago these columns contained the account of a trip through Norway, the previous summer, in which I ventured to recommend that country as an ideal place for a few weeks' escape from the rush and wear of modern life, and for the acquisition of the maximum amount of quiet and recuperation for a racked nervous system obtainable in a limited period.

But when, sometime later, I came to look over this article again,—the immediate glamour of my visit having in the meantime grown less vivid, I could not help experiencing serious misgivings; the story sounded *too* good, somehow, and I questioned whether, with a neophyte's enthusiasm,—for that had been my first trip to Scandinavian countries, I had not allowed myself to be carried beyond the limits of strict reality, and had not depicted certain things in roseate hues that were in fact possibly not so remarkable as they had then appeared.

When, therefore, this year the proposal arose of a second trip to Norway, the saying of Maxime Du Camp occurred to my mind, "vieilles amours, vieilles demeures, il n'y faut point retourner," and I seriously reflected whether it would not be the part of wisdom to abandon the idea and remain with my pleasant recollections undisturbed, rather than go and suffer deception,—find that Norway was not so different from other lands after all. So that when, one evening early in July, the blinking and talkative coastline of Southern Norway gradually arose above the waters, and the great Ryvingen electric light flashed consolation to a small band of sorely-tried travellers, most of whom had long since,—to use Punch's expression,—"folded up their stomachs and stowed them in the lining of their hats,"—I was not particularly reassured as to whether I were not heading toward a cruel disillusion, for in my article on Norway I had gone pretty far in the matter of commendation of land and people.

But when, finally, we turned abruptly in to-

ward the maze of low, granite isles that fringes the coast, slowed down the engines, and, in the silence of the bright twilight that passes there for midnight, glided smoothly into the narrow vik that leads to Aerndal over a water-surface with the sheen of a bath of quicksilver,—the sight of the tiny spick-and-span Noah's Ark cottages nestling in the recesses on the shore on either side, and the indomitable spruce and firs clinging to every crevice in the rocks, conjured up once more for me the special spell of Norway, and my spirits began to rise: "I fancy I was not so far wrong about it, after all," said I to myself.

We again spent five weeks in the country, constantly on the move, and it affords me no slight degree of satisfaction to be able to state that I have nothing whatever to retract from my former account, in spite of its dithyrambs. There *is* something altogether peculiar about the atmosphere and life in Norway, not to be found in any other region in which I have travelled; and it is for the purpose of once more suggesting to our confrères that they should cease following in each other's footsteps through France, Switzerland and Italy, like a lot of sheep, but go and try Norway, and of endeavoring to analyze the quite unique charm of the land, its climate and, above all, its people, that I have ventured to again bring up this subject in these columns.

Our former trip had been limited to the popular Western coast, and had been carried out chiefly on board of little fjord steamers. This method of travelling has many and unquestionable advantages, but it has also one serious drawback, in that it brings the visitor too much in contact with the common stream of tourists and does not admit of his becoming acquainted with the real inhabitants living inland on the farms. So this year we had decided to visit the highlands and lake district of Southern Norway, Telemarken and the Saetersdal,—regions that are said to have been less affected by the modern advance in civilization than any other portion of the country. This we found to be perfectly true. By keeping off of the main Telemarken highway, to the one side or the other, we found vast and beautiful tracts where foreign tourists are entirely absent, and where we met no one but native travellers and not many of them; in this whole province the ubiquitous and odious German tripper is practically unknown,—*verbum sap!*

The essence of the charm of a trip in Norway is without question the *détente* it affords to the nerves; now, it is a matter of no little interest to endeavor to ascertain the causes of this peculiar effect: why is travelling in Norway so much more restful to the wearied medical man, for instance, than, let us say, a tour in Italy? The ultima ratio of this difference is to be found in the altogether dissimilar characters of the two races; and in order to bring out to the full the sterling qualities of the Norse, I ought by rights to begin with an exposition of the principal defects of the inhabitants of the parts of Central Europe most frequented by tourists, and in particular of what are termed the Latin peoples. But in the first place the characteristics of these estimable races are already fairly widely-known, some of them even proverbial; and in the second I have, I think, so much of interest to say on my immediate subject that there is no space over to waste on the Latins. Perhaps on some future occasion I may take this question up separately and really concentrate on it, for I have lived some thirty-three years in Central Europe and know these people fairly well. But today I will restrict myself entirely to the Northmen; and in their connection it must be distinctly understood that I am referring only to the geuine, unspoiled article, living off in the country out of the way of tourists; for the demoralizing effect of contact with the latter can be already seen along the more frequented lines of travel and in the larger towns.

In endeavoring to account for the pleasure and rest to be derived from a trip through Telemarken and the Saetersdal, it will be desirable to consider the configuration of the land and the nature of the climate, as well as the character and customs of the people; and it is with the first of these points that I propose to commence.

When the Northmen speaks of his country as *Gamle Norge*, old Norway, he uses a term more pregnant with fact than he is probably aware of, for the oldest strata of the earth's crust that have so far been found lie uncovered in Southern Norway, just as in Greenland and Labrador. This coarse, primitive granite makes up practically the whole of this part of the country, which consists of a wilderness of very high hills, deep and often narrow valleys, and an infinity of lakes. Rushing streams tear and tumble down the ravines, and the steep hillsides have everywhere the same sober coating so restful to the eye, pine, spruce and birch, the latter being the last tree to resist the rigors of the climate as the altitude approaches the line of perpetual snow; this elevation is reached in a number of places in this region, the hills rising to about 6,000 feet, close on to the maximum for Norway. It is rather a curious detail that a tree in appearance so delicate as the birch should possess a greater power of resistance to climate than one so rugged as the pine.

The country is but sparsely settled, as ground fit for cultivation is not plentiful. Level spaces are found along many of the lakes, especially where the streams flow in and have formed deltas, as also at different points along the water-courses; in these places the people live as a rule in settlements, or grænder, as they call them, but from grænd to grænd you will not see another house. The Northman's national anthem runs, "Yes, we love this land as, with its many homes, it rises furrowed and storm-

beaten above the waters," and this description gives an admirable idea of the general aspect of the country, for as you travel around you gradually awake to the fact that you are passing over the scene of a prehistoric titanic struggle, the more immediate results of which have in the lowlands been effaced by time and a mantle of vegetation, but whose main features are still very perceptible in the higher regions. For Norway once lay entirely buried beneath an immense sheet of ice, which ground, crushed and scarred everything in its way as it slowly moved along, and the effects of whose might are still visible on all sides. I imagine that if ever Greenland emerges into the sunshine again from beneath its coating of ice it will ultimately come to look very much as Norway does at present.

Telemarken has one main thoroughfare from east to west which it is best to avoid. To the North of this road stretches the huge Hardanger-vidde, or wilderness, up to the Bergen railway; to the south of it and at right angles runs the lovely Saetersdal, but separated from Telemarken by long and weary passes with only foot or bridle paths. Scattered all about the intersection of the lines of these two valleys are the many lakes, dales and curious out-of-the-way nooks and corners that constitute the fas-



FIG. 1.—TYPICAL LAKE IN TELEMARKEN.

cination of the region. Now be it imagination, or whatever you choose to call it, there is something about this district, its ruggedness, its wild, fascinating beauty, the feeling that you are actually on the scene of one of nature's huge battlefields, that quite exteriorizes you from your personal petty affairs, and fills you with a sense of awe. There is a strange stillness and remoteness about the place, almost a solemnity, that is quite in keeping with the scenery, and that is not broken at the turnings of the road by a cretin blowing on an alpine-horn to arouse an echo, or by the appearance of a gaudy Swiss pine wood hotel.

The typical farm-home of a well-to-do Telemarker on the slopes near a lake consists always of at least three parts: dwelling house, stabur and a huge barn, more or less surrounded by trees,—fruit, the rowan, ash, asp or linden.



FIG. 2.—AN ORNAMENTAL STABUR.

The stabur is a small storehouse for provisions, clothing, implements, etc., raised on legs to preserve it from vermin, and standing apart by itself; they are to be found practically on every farm, and are an indication of the honesty prevailing in the region, as elswhere such primitive arrangements would be rifled by thieves at regular intervals. The main buildings usually have heavy stone foundations, rising to a certain height above the ground and crowned by a wooden superstructure. So far as possible these houses have a southern exposure. There appears to be a certain etiquette about the color of these buildings, as it is similar on nearly every farm. The dwelling-house is white, or pale green; the barn a deep, rich, warm red, picked out with white along the lines of the roof and openings; and the staburs are of two kinds: if old and made of the magnificent logs they used to have in Norway, dove-tailed together, these are not painted but are left in their natural state; otherwise they are colored in the same manner as the barns.

Some of these staburs are extremely old, dating back five and a half centuries to the Black Death (1349), an event still frequently referred to in Norway, and the pine timber of which they are built will measure as much as two feet in diameter today, as it stands in place polished and trimmed. In the higher valleys there is practically nothing else but log-houses, built in the original primitive fashion, but with so much care and skill as to form dwellings that anyone could live in. We stayed for a while in a quite

elaborate summer hotel of three stories that was constructed throughout on this log-cabin plan, and the little cottage in the accompanying photograph was as neat as anyone could desire, stone basis, logs 13 cm. in vertical diameter, slightly flattened on the sides and hollowed underneath to fit on to the convex surface below, and rafters covered by jointed planks protected by sheets of birch-bark on which rested the turf, held in place by vertical footboards at the edge of the roof. This style of house-covering, birch-bark and turf, is mentioned in the old sagas of one thousand years ago, and is still in common use in Iceland; part of the cargo of the little steamers that ply to Iceland is made up of rolls of Norse birch-bark for this purpose.

The Norse farmer is either not a particularly thrifty man or else he is satisfied with little, for outside of hay and potatoes his fields do not show much of anything, but in the more fertile valleys the grass is magnificent, and some of the red clover patches that are here mingled with an astonishing proportion of ox-eye daisies, furnish a most bewildering note of color. The streams are fringed with hazel and alder, and by the roads grow the wild rose and juniper, meadow-sweet and syringa; and when the sun beams down good and hot on all these plants and on the balmy coniferæ the entire atmosphere is redolent with perfume. In the shady uplands, nestling in the moss beneath the spruce trees, grow the linnea borealis and pyrola uniflora, two of the most beautiful and fragile of wild flowers. Strange that such delicate plants should choose such a rigorous habitat. And over all flits the ubiquitous jay; there is not a tree but has its dissolute magpie, which even appear in large flocks now and again. Norway seems to be the heaven of the saucy jay.

The means of communication throughout this region are varied. There is the busy little lake steamer that dodges out and in among the holms and viks, and skips up and down the steps of the many locks. Then there are occasional motor boats, or you can hire men to row you pretty much anywhere for a moderate recompense. The roads in the valleys are good; unfortunately public motors are being introduced on certain routes, and the road-bed, which was constructed for the light little one-horsed buggy that is the delight of travel in Norway, will soon be demolished by that sort of traffic. With this buggy, or stolkjaerre, you can go anywhere, and where the roads cease you can take to your two legs, and this is probably the part of these trips that you will remember with the most pleasure. A man can always be obtained to carry your knapsack, or if the trip is not too hard you can carry it yourself, and then you are as free as the birds of the air. These walks over passes from valley to valley were our delight, bringing us into contact with the good folk up on the mountain pastures, where everyone addresses you in the second person singular and is apt to inquire whether you know their son, or brother, who has emigrated to Minnesota and is working there on a farm. In a great many of these places the traffic would not warrant the maintenance of even an inn; but there is always one house, that of some farmer, or of the sheriff, parson, doctor or storekeeper, where two or three simple, clean rooms are set aside for passers-by, and at which you can put up for a very small return indeed. We even spent one night comfortably in a hay-loft.

In order to lead this life one has, of course, to be satisfied with the simplest of fare and the plainest of everything, the menu practically never moving outside of farm produce, eggs, milk, butter, bread, cheese, ham, lake and river fresh fish, cranberry preserves and coffee and tea; but we both remarked at the end of a month of this diet that we had never felt better, and that "the simple life" might not be such a bad proposition after all. I imagine that the explanation of this is in part the following: Of that farm produce, which of course was not particularly attractive to two Parisians, we ate no more than our needs positively demanded, whereas at our city meals, where everything is served in as tasty a form as possible, we habitually eat much more than we require and suffer in consequence.

Closing here, then, these remarks about the country in general, we come next to the question of climate. The reputation of Norway's summer climate is not a particularly flattering one, and among other things it is supposed to rain there a great deal. Certain places are reputed to be especially favored in this respect; for instance, local wits claim that in Bergen the rainfall is such that horses shy if they meet a person on the street without his umbrella raised. My experience of course is limited to the four summers I have spent in the Scandinavian peninsula, but during that time I am quite certain that I have not had my plans upset by rain one-quarter as much as used to be the case when I frequented Switzerland. In Norway I have on no occasion been housebound by weather for more than one day at a time, whereas in Switzerland I have often been held a prisoner for a week or ten days, and once for seventeen days on end. In Norway you frequently have to give up half a day to a shower, but you can nearly always get the other half. I do not believe that in our four summers we lost more than ten entire days at the very outside, so that I am wondering whether the rain question has not been overstated.

The incidence of the sun's rays is of course so oblique so far north as Norway that you have there the curious experience of a climate that gives all the impression of mid-summer without any real heat. If you are lazy one forenoon and do not get underway until nine o'clock, which is apt to occur as the Norse stay up very late at night and do not like to turn out in the morning,—guided by your Swiss experience and by

the bright sunshine out of doors you groan in spirit and say to yourself, "Now we're in for it!" But not at all. You will be as comfortable as you please, for the Norway sun does not hurt anybody. This getting the Norse up in the morning is a sore point. The days of course never end if you get to Norway early enough in the summer; it merely grows dim for a short time towards midnight. So that you can walk until any hour of the night, or all night and sleep by day, or start at any time in the morning, exactly as you please, it is always daylight. The Norse simply love these long evenings, "de deilige lyse Naetter," as they call them and are horror stricken if you speak of breakfast before eight a. m. One maid nearly had a stroke when I observed that I did not need to be waked at seven! "Oh," she said, "so you can manage that yourself!" This to an old climber, whose usual hour had been one a. m. So in view of this difficulty in getting away betimes we finally had to adopt the plan of having a cold breakfast put in our room in the evening and paying our bill over night, and of then stealing down in our stockings at four, five or six a. m., just as we liked. There is one inn up there that I fancy has not yet recovered from its astonishment at our return by noon from an ascent from which the native custom was to get back some time in the evening at dusk. Some people complain that this perpetual daylight prevents them from sleeping. Well, if your sleep is put up on the hair-trigger system there is no use of your going to Norway, for it will not be those amusing light blue curtains that the Norse supply that will afford you any appreciable assistance in creating artificial darkness. Personally this feature never worried me; I generally arranged to be comfortably tired by evening and could fall asleep at any hour. The practice of arising in the morning at one hour more unholy than the next is, however, one not always fraught with unadulterated bliss, nor is the état d'âme induced by turning out at three a. m. improved by cold breakfasts, which are comfortless affairs at the best; but as a general thing, after we had once got up steam and walked an hour or two in that crisp morning atmosphere up some beautiful valley, with everything wearing the delicious air of freshness that can only be observed at that time of day and that vanishes so quickly when the sun puts in an appearance, we were usually quite ready to admit that the system is the correct one and that the saying that "ce n'est que le premier pas qui côute" is perhaps even truer in the mountains than in other of life's conjunctures.

We come finally to the third element in our study, the inhabitants themselves. The Norse are unquestionably the easiest people to get along with that I have ever encountered. Their ideal of life seems to be that of the trained diplomatist, "Et surtout, pas d'histoires." On this principle the traveller in their land is allowed to do pretty much as he pleases. I suppose that if you actually robbed or murdered or committed arson in full view the arm of the law would get hold of you somehow, though I could never see just where it resided, outside of the large centres; but short of that there is a degree of liberty accorded that is incredible. There is in particular a total absence of attempts on the part of the inhabitants to induce the traveller to do things that may be to their pecuniary advantage; thus, if you want a horse or a boat or a guide these will be promptly produced, but there is practically never any effort made to persuade you to take one. The native sits around with an air of total indifference until you have expressed your wishes; once these are understood they are accepted as final and complied with as rapidly as possible. If, for instance, you arrive at a posting inn at 7 p. m. and ask for a fresh horse to proceed onwards, not the slightest endeavor will be made to persuade you to spend the night at the said inn. They have not, then, the faintest notion of the chief article of the Latins' creed, to wit, "Do the stranger while he is within your gates, and do him well," and among other ways this is exemplified in the bills, on which the prices are very much the same whether you spend one night at a place or several weeks. In Switzerland there would be a difference of fifty per cent. It also appears at meals. No waiter ever brings you the wine-card and fixes cold and threatening eyes on you until you order a bottle of something; if you want anything special to drink in Norway you will have quite a little trouble to get it as that is not one of their customs. Anyone who has seen whole tablefuls of tourists "held up" in Switzerland by insolent head-waiters and has noted the look of contempt they put on if anyone dares to say they will drink water, will appreciate what a difference this one point will make with quiet people. In a word, life for the traveller is very uncomplicated up there, and to a person whose head works along English lines this is particularly agreeable, for the heads of the Norse do work very much as ours do and I must now refer to this topic a moment to make it clear why life is so easy in Scandinavia.

There is not the slightest doubt that the Scandinavians are the direct ancestors of most of us and that from them we have inherited the good qualities that,—I will not say distinguish our race, but that are possibly more marked with us than with other people. The chief of these qualities can, I think, be fairly enumerated as follows: honesty, the habit of telling the truth, love of home, desire to be directly interfered with as little as possible by the powers that be, spirit of fair play, genuine kindness of heart, and consideration for domestic animals. I cannot claim in any way to have had enough to do with the Norse to say whether they possess all these traits to as marked a degree as the English themselves, for instance, but concerning some of them I do feel competent to speak. To begin with, their

love of home is proverbial, so that one can set that point aside. Incidentally it can be observed that they unquestionably have the most beautiful national flag in the world. Again, their honesty is something extraordinary, incredible if you have not been there; and this is the more remarkable in that the "slimness" of the Normands of France, their direct descendants, is so pronounced as to be a by-word even among the very "slim" Gauls in whose land they live. These people possess the real kindness of heart that is so rare. They have, so to speak, no polish at all; every one is as good as everyone else. No one thinks of using the terms Sir or Madam, and it is all plain "You," and direct "Yes," or "No,"—when you are not addressed by your first name and in the second singular; but ask them to do anything for you and there is no end to the trouble they will take. Their rule of life seems to be to try and help the traveller in every way, and they do it all in as quiet and unobtrusive a manner as possible, without the slightest thought of recompense.

The women are a very interesting study to anyone used to Paris and the French, among whom everything in life is offered up at the altar of appearances. So far as I could observe what we understand as "pretty" women are not common, but you see a great many striking faces, with bright, rather prominent eyes, good color, abundant hair and a general air of independence that is very refreshing. The fact is that this is a great country for women and they move around in it pretty much as they like. This freedom and self-reliance is a marked feature in Norway and they have a special adjective for it, kjaek, that has no equivalent in our tongue short of a sentence. Like their sisters, the Germans, Dutch and English, they do not pay much attention to dress and have no idea how to go about it when they try. "Any old thing will do so long as it's respectable," seems to be the idea and the result is sometimes startling. There is great uniformity of fashion among them and no desire whatever, apparently, to outdo each other; entire simplicity rules the day and must save trouble untold. This reaches its climax in the Saetersdal, where every woman in the valley dresses exactly alike, in home-made vadmal, as they used to do in the saga days. In other countries a pretty woman's chief ambition is to keep from getting sunburned and freckled; in Norway, fashion decrees just the contrary. The young ladies—smaapiger is the term—run around, boat, play tennis, and go on excursions, without hats and with low necks and very short sleeves, and she is the happiest who tans the deepest, but the spectacle that some of the darker ones present in the evening with their walnut-colored necks and arms peeping through their summer cambrics, is indescribable. But they all have such a wonderfully fine time up at the Sanatoria (as summer inns there are called) among the mountains! From their looks it would not surprise me if the



Fig. 3.—Sunday Dress in the Sattersdal.

women are not really the mainspring of the nation, a good deal as in France. And such splendid, ringing names as they have! What are our toneless women names, Sallie, Lillie, Fannie, etc., compared with Ragnhilde, Ingebjörg, Sigrid, Kirsten, Gudrun, Karen, Torbjörg, Astrid, Solveig and Aastra,—particularly the last three! Suitable appellations for women descended from Valkyriur,—and many of them look as though their dispositions might suit their names. In Ibsen's "Peer Gynt" one of the most attractive characters is that of a lovely young girl named Solveig, who is always represented on the stage with an innocent face, pink cheeks, blue eyes and flaxen hair, so that this has gradually come to be the accepted type of the Norse peasant girl. So far as I could see, however, the majority of women were rather dark than the contrary, whereas the striking blond is more characteristic of Sweden. But this style of girl has now become so familiar from the stage that if you meet a pronounced type of it on the street you can almost risk an unobtrusive "god dag, Solveig," without giving offence. In that primitive district, the Saetersdal, the women are still named just as they are today in far-away Iceland. We put up one day at a farm called Besteland, owned by a man named Paul; now his daughter's official name was Leif Paulsdattir Besteland: Leif, daughter of Paul, of Besteland farm.

Piety among these people, as also among their descendants in England and America, takes now and then a somewhat startling form. The final hour on Gausta Mountain is up a very steep trail composed solely of large and loose stones with nothing between,—the most heartbreaking kind of walking, where you have to go very slowly and watch how you take each single step. This would not, as a general rule, be conducive to good humor, but your temper is disarmed when you find that some enthusiast

has taken advantage of the situation to stencil pious sayings in white paint on the different flat stones along the path. You simply cannot avoid them short of closing your eyes, which would quickly end in your undoing. If they were only appropriate: "But I say unto you swear not at all," for instance, you might stand it; but they are not even that,—pure piety and upbuilding, and it is certainly trying to *have* to take your medicine in that manner. Another man we met seemed to spend his days sailing up and down one of the lakes distributing devout leaflets to the travellers, as he knew time hung heavy on their hands. But where these apostles really get in their fine work is at the posting stations along the main roads. You always have to wait at a posting station, either to change horses, to get a meal, to let a storm pass, or to spend the night. So what these men do is to come along, gather up any stray, general literature there may be about, and leave in its stead their dreary papers and tracts; so that here also there is no possible escape: if you cannot sleep you are forced to read the "Salvation Herald."

But the feature that will interest the humanitarian most in these people, and in particular along the postroads, is their treatment of their admirable little mountain horses. Just as the degree of a man's breeding can be measured by the attitude he assumes toward his servants, so can the degree of his genuine kindness of heart be gauged by his behavior toward the domestic animals; and to the good hearts of their Norse masters the animals themselves are the best witnesses. This is true with them all, horses, cows, dogs, cats, goats,—none of the beasts are afraid of man in Norway. In a land where horses running free in pastures come up to you spontaneously for companionship and poke you with their noses you may rest assured that they are habitually well treated by their owners.

The Norwegian horse is very small, but tough as leather. The roads he has to trot over follow the natural contours of the hill-spurs that form the valley-sides, but as these are solid granite any attempt to reduce the road profile to an even grade would be an extremely costly matter and has not been undertaken. These courageous little beasts have, therefore, an amount of sheer up-and-down hill work to do that would break the heart of any other animals, but which they negotiate with an indifference and skill that aroused my deepest admiration. Compact, vigorous little chaps, with finely cut, intelligent heads and erect, cropped manes, they hold a middle position between the stupid beast of the continent and the supremely clever horse of Iceland,—of whom, of course, their race supplied the ancestors,—for the Icelanders all rank their little horses of the best class as fully the equals of their dogs. The horse in Iceland has a job to tackle that is quite different from other horses, and in this way his intelligence has been educated up to a very high point. Icelanders in passing from one valley of their island to another have almost invariably to ride across high, barren heaths and wastes exposed to the most violent snowstorms, in the course of which they frequently lose all notion of the points of the compass. Their custom is then to dismount, drive the horse on ahead and trust to his sense of direction, which rarely fails them. In fact, the Icelandic horse is constantly surrounded by danger to life, and has had to learn how to avoid it. He has to cross frozen rivers, and must know whether the ice is safe; he has to ford glacial streams all the time, and must know where he can do so with safety; quicksands are common, and he must know what kind of sand can be trusted; in bogs he must know which tufts will bear and which not; drinking-bouts are common among men who go in from the up-country farms to the trading posts, and a properly trained horse I am credibly informed understands this and comes to so arrange his gait that a rider with a wobbly seat will not fall off, or if he does, the horse has the sense not to run away home, but stands by until his master is able to remount. These sound like fairy tales but they are not; any Icelander will tell you experiences with horses that would be hard to believe were the consensus not so unanimous as to the extraordinary intelligence of these little beasts.

But the Norse quadruped is not far behind his Icelandic confrère. With his bright, wide-awake eye unhampered by any blinker it is really he who is running the procession as you jog along. His close companion and pal, the small boy who perches behind you and who rejoices in the name of the skydsgut, gives vent incessantly to the most extraordinary sounds which are supposed to influence the horse's actions, but to which he in reality pays no attention whatever. He knows exactly what he has to do to get you over the road to the next station, how much time he has, where the bad grades are, and where all the drinking troughs are placed, and you could trust him just as well on his beat in the dark without any skydsgut at all. The only real use of the latter is to bring him back home empty, if necessary. So intelligently do they negotiate their beat to the next station that in spite of their almost ridiculous size they will pull a buggy with two people, a boy and several bags, more or less on a constant trot on a warm day for twenty-five kilometres up and down those cruel grades, and come in literally and truly without having turned a hair. They jog along as they like, head in the air and ears up, apparently enjoying the trip. They generally have a heavy tuft of mane brought down over the forehead and carefully combed. This apparently is their way of dressing up, and from under it their clear, shining eyes look very fine. If they meet a confrère on the beat they neigh and stop and sniff noses, while the skydsgut exchanges gossip with the other one. When I said in my former article that these horses stop at the

foot of bad hills and look around and say, "This is where all hands get out and walk," no one believed me. It is, however, literally true; I have seen them do it over and over again. The boys always hop out behind and walk at the grades, so does the traveller in front, if he has the sentiments of a gentleman. No one rides but the lady passenger, if there is one. When the horse thinks he has had enough he pauses and the boy immediately hops up on to the spoke of the wheel, to keep the vehicle from dragging backwards. When the horse has got his breath again he starts afresh of his own accord. These boys jump out and walk up grades even when taking their horses home empty, and when a horse stops to feed his bridle and bit are always taken off entirely and a loose halter put on. The consequence of what I personally have observed is that you never see a horse in Norway that looks either pushed or done. I have never seen them come in panting, sweating, hanging their heads and ears, in a word, showing signs of exhaustion; nor do you see horses giving vent to bad temper, throwing their ears back flat, biting, stamping their feet, swishing their tails or kicking. They are unquestionably universally well treated and well fed, and it would be interesting to learn how the people manage to keep them in such superb form, for a horse has to be in the very best condition possible to look and act as they do. I have never seen horses average up so well as these. They seem to live on a footing of great intimacy and equality with their boys, who talk to them constantly as they harness up. When they unharness at night the boy grabs his chum by the forelock and off they both race to stable or pasture, *arcades ambo*. Whips are apparently unknown. When now and then a horse gets a mischievous fit and is visibly playing the fool the boy hops down and breaks a green branch off a tree by the wayside and then ostensibly strips it where the horse can see him, and promises him a beating. This, however, never comes off as the horse knows just how far to carry his little joke.

It therefore appears that it is quite feasible to get horses to do a good day's work and to keep them in gilt-edged condition without any of the yelling, cursing, lashing with whips and rein-jerking so dear to the heart of the Latin and apparently to him so indispensable. I repeat, it is impossible that those animals should be maltreated, so tame and human have they become. We were walking in a path by some remote hill-pastures one day, and noticed a very fine-looking pony the other side of a fence with a barred gate. This horse had his forelegs handcuffed with rings and chain, as I regret to say is the custom in that land when horses are turned out to graze,—I suppose to keep the little beggars from coming into the houses and sneaking upstairs to bed with the skydsgut, which they would be quite capable of doing! This horse held up his head, threw his ears forward, had a good look at us and neighed. We are polite folk so we howdied back to him and passed on. A few minutes later we heard a tremendous racket and jingling behind us, and looking round saw that our friend had broken through his bars and was galloping down the path toward us as best he could with his handcuffs. He only wanted to pass the time of day with us,—evidently felt lonely up there by himself,—and made not the slightest objection when we proposed to him to adjourn back to his field and have the bars put up a little more securely.

All over the country, if you will look for it, you will see a proclamation posted up in the stables concerning the treatment of horses. It begins, "We, Haakon,—Norway's king, make known," and then follow eight paragraphs of minute regulations concerning every imaginable detail connected with horses used in public service: daily distance or load according to weather and roads, speed, horses not to be struck; halts on grades, harness and sores, shelter and protection in bad weather or snow, no bit to be used in winter until warmed, food and drink, proper shoeing, sick and lame, and animals that shy or bite,—ending with, "whereafter all parties concerned are to be governed. Given at our castle in Kristiania, under our hand and the Kingdom's seal." Nothing can be better than that, no doubt; but I question very much whether such regulations are badly needed. These people must have the love of animals in their very blood or the animals would never behave as they do.

These remarks about Norway may have seemed pretty long, but they have at least rendered it possible to make what remains to be said correspondingly brief. I started to examine the question of what there is peculiar about this country that makes a vacation there more restful than elsewhere, but I think that the answer has practically been contained in the description I have given of land and folk. I said that the difference between the pleasure of travel in Norway and in the Latin countries rested *en fin de comptes* with the people. Now with a race that is honest, truthful, simple, kind-hearted, and friendly to animals, it will always be easy for an American to get along. The Northmen have these attributes, the Latins have not,—this is the explanation of the whole affair. Any traveller who is satisfied with primitive things, who can sympathize with self-respect in others, who will not attempt to order people about, and can meet his scamp of a skydsgut on a footing of equality and not take offence at his delicious "thou," will find Norway a delightful resort in summer, unlike anything elsewhere. But if he is authoritative, exacting, and unable to adapt himself readily to circumstances; or if he belongs to the category of individuals who have to bathe night and morning, require a valet to lay out their clothes, dress for dinner, and expect a stringed orchestra during meals,—Norway is no place for him, and he is not wanted there.

THE EFFECT OF THE PASTEURIZATION OF MILK ON BABIES.*

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THERE is no doubt that the pasteurization of milk at as low a temperature as 140° F. for as short a time as twenty minutes destroys pathogenic organisms and that higher temperatures for a shorter time will do the same. There can be no question, therefore, that the pasteurization of milk diminishes the danger of infection with these organisms and the incidence of the diarrheal diseases, in so far as they are caused by bacteria. It seems probable, from the work done recently at the United States Agricultural Experiment Station, that the belief that the bacterial flora of pasteurized milk is different from and more dangerous than that of raw milk is erroneous. It was found there that the relative proportions of acid-forming, liquefying and inert bacteria were essentially the same in efficiently pasteurized milk as in clean, raw milk. Their work also showed that the rate of multiplication of bacteria is the same in pasteurized as in raw milk.

It has been claimed that the pasteurization of milk destroys the vital properties or the "life" of the milk, thus rendering it less suitable as a food for infants. These vital properties are presumably represented by the enzymes or ferments of the milk. There is no question that the digestion and metabolism of cows' milk by the infant is carried on by ferments. There is also no question that the infant itself provides ferments to do this work. There is no evidence to show whether the infant's ferments are intended to do the whole of this work or whether the ferments in the milk are intended to do a part of it. It is impossible to know, therefore, whether the destruction of the ferments in the milk will do harm or not. As a matter of fact they are not only not destroyed, but, as a rule, but little weakened by pasteurization at low temperatures.

The power of cows' milk to produce a specific lactoserum is not affected by heating for one hour at 248° F. Pasteurization for one-half hour from 140° F. to 149° F. weakens, but does not destroy its bactericidal action. The oxidizing ferment of cows' milk is unchanged by heating at from 140° F. to 149° F. for one hour, but is destroyed by short heating at 168° F. The proteolytic ferment is unchanged by heating for one hour at 140° F. or one-half hour at 149° F. The alexins are still active, although weakened, after an exposure of one-half hour to a temperature of 149° F.*

It is, or has been, very generally believed by physicians in this country that the heating of milk makes it less digestible by infants, that infants fed continuously on heated milk do not thrive as well as those fed on raw milk, and that the continuous use of heated milk predisposes to the development of the diseases of nutrition; scurvy, rickets and anemia. What is the evidence for and against this belief?

The evidence derived from laboratory experimentation as to the relative digestibility of sterilized, boiled and raw milk is inconclusive. There is very little as to that of pasteurized and raw milk. The heating of milk at temperatures under 150° F. has no effect on the rising of the cream. Heating milk at 150° F. or over for one-half hour delays or prevents it. The fat droplets in raw milk agglutinate into tiny globules or masses, while in milk heated at 150° F. or over these clusters are broken down and the globules are more homogeneously distributed throughout the fluid. The heating of milk at 140° F. for twenty minutes has no effect on the coagulation by rennin. When milk is heated at 176° F. or over, however, the coagulation of the casein by rennin is delayed and the curd is less tough and more flocculent than in raw milk. The lactalbumen is denatured by temperatures between 167° F. and 176° F. What little laboratory evidence there is shows, therefore, that the pasteurization of cows' milk at low temperatures has no effect on its digestibility, while the pasteurization at slightly higher temperatures apparently makes it more, rather than less, digestible.

The results of animal experimentation are contradictory, unsatisfactory and inconclusive. Dean, for example, got larger gains when he fed calves with pasteurized milk than when he gave them raw milk, while Doane and Price conclude from their experiments with calves that raw milk is more easily digested than either pasteurized or cooked milk, and Raudnitz, working with dogs, found that raw milk was utilized better than sterilized milk.

Very few metabolism experiments as to the relative utilization of the various elements in raw and heated milk have been carried out in infants and in the great majority of these experiments the milk has been sterilized instead of pasteurized. The results of these experiments are so contradictory that little reliance can be placed upon them. It seems probable, however, that there is but little difference in the utilization of raw and pasteurized milk.

Those who believe that infants thrive as well on heated as on raw milk and that heated milk does not predispose to the development of the diseases of nutrition advance in favor of their belief the fact that babies in France and Germany are almost invariably fed upon heated milk. Variot, for example, during the twelve years subsequent to 1892, distributed 400,000 bottles of milk sterilized at 108° C. to more than three thousand infants, and found that only 3 per cent. or 4 per cent. of them were incapable of using sterilized milk and that rickets did not develop in any. Constipation and anemia were, however, not uncommon. His statement that

*Read at the meeting of The Massachusetts Medical Society, on June 12, 1912.

rickets did not develop in any is, however, open to doubt, because, if the babies in France are like the babies in America, at least 80 per cent. of all the babies of the hospital class show signs of rickets. This fact raises a certain amount of doubt as to the accuracy of his observation in other respects. He says nothing as to whether any of them developed scurvy. Carrel fed 210 babies on ordinary milk and 373 on sterilized milk, the babies belonging to the working class in Paris. He states that 31.8 per cent. of the babies fed on the ordinary milk showed evidences of rickets and only 15 per cent. of those fed on the sterilized milk, while none of them showed signs of scurvy. The same criticism as to the frequency of rickets in this country and in Paris applies to his figures as to those of Variot. It must be remembered that at this time the French physicians were not familiar with the symptomatology of scurvy and that very few cases had been reported by them. Since they have learned to recognize the disease many more cases have been reported and it is evident that the disease is far more common in France than was formerly supposed. Finkelstein found that babies fed with cooked woman's milk did not do as well as those fed with raw woman's milk. He then fed a series of babies on cooked milk and raw milk, the modifications being the same, and found by a study of parallel cases no essential difference in the development and condition of the babies. He also states that similar experiments made in Stockholm, during a period of three years, failed to show any differences in the development of the babies fed on cooked and raw milk. There have been, as far as I know, no comparative studies of large series of babies fed on pasteurized and raw milk made in this country. It must be admitted that the evidence advanced to show that the heating of milk is harmless is very strong. It is evident, on the other hand, that it is not as strong as it at first appears.

Some of those who believe in the innocuousness of the pasteurization of milk for infants claim that it cannot cause rickets, because rickets is not due to improper food but to improper hygienic surroundings. While improper hygienic surroundings almost certainly play a part in the production of rickets, it is equally certain that improper food and hereditary predisposition also have a share in its etiology. The relative importance of the different factors is, however, at present unknown. In fact, the exact etiology of rickets is extremely obscure. Such being the case, arguments as to the effect of the pasteurization of milk on the development of rickets are practically valueless.

All large series of cases of scurvy show that a considerable proportion of the patients were fed on heated milk, more of them, however, on sterilized, boiled or scalded than on pasteurized. It has been believed by many, therefore, that the heating of milk is the most important single factor in the etiology of scurvy. Others claim that it was not the heating of the food which caused the scurvy in these babies, but the composition of the food which was heated. They advance in favor of their claim that scurvy also sometimes develops in the breast-fed and not infrequently in babies fed on raw milk. It is evident that when an individual baby is fed on a heated, modified milk it is impossible to know, if scurvy develops, whether it is due in the special case to the heating or to the composition of the milk. It can only be a matter of opinion. A decision can only be made by the analysis of large series of cases. How unsatisfactory this method may be can be judged from the fact that the results of the analysis of the series collected by the American Pediatric Society, the largest single series on record, are quoted by different writers as proof of both sides of the question.

The evidence from the literature as to the effect of the pasteurization of milk on its digestibility by infants and on their nutrition being so unsatisfactory, it seemed to the writer that it would be well worth while to find out what was the opinion of the leading pediatricians in this country as to these points, especially as the objections to the heating of milk to be used as a food for infants had been raised almost entirely in this country. A circular letter was therefore sent to the members of the American Pediatric Society asking the following questions:

1. Is pasteurized milk more or less digestible than unpasteurized milk?
2. Do babies that are fed continuously on pasteurized milk thrive as well as those that are fed on unpasteurized milk?
3. Does the continuous use of pasteurized milk predispose to the development of the diseases of nutrition?

Scurvy?
Rickets?
Malnutrition?
Anemia?

Replies were received from fifty. No one of them had made a careful, statistical, comparative study of the subject. Many of them called especial attention to the fact that they were merely expressing their opinions or their impressions. Some had positive opinions about one point, others about another; one man thought, for example, that pasteurization predisposed to scurvy and not to rickets and anemia; another that it predisposed to rickets and anemia and had nothing to do with scurvy; another that it predisposed to rickets alone, and so on. A number who thought that the pasteurization of milk did not make it less digestible or predispose to the development of the diseases of nutrition stated, however, that they prescribed raw milk, if possible, while others stated that they always gave fruit juices when they used pasteurized milk continuously, making it appear as if they were not quite sure of their ground.

Eight of the forty-two who answered definitely the question as to the comparative digestibility of pasteurized and unpasteurized

milk think that pasteurized milk is more digestible than raw milk, twelve that it is less digestible and twenty-one that pasteurization makes no difference in its digestibility.

Forty-two gave definite answers to the second question as to whether babies thrive as well on pasteurized as on unpasteurized milk; nineteen think that they do and twenty-three that they do not.

Eighteen of the thirty-eight who answered clearly the question as to whether the continuous use of pasteurized milk predisposes to the development of the diseases of nutrition believe that it does and twenty that it does not. Eighteen of thirty-seven think that it predisposes to the development of scurvy, twelve of thirty-four to that of rickets, seventeen of thirty-seven to malnutrition and anemia.

It is evident, therefore, that there is no unanimity of opinion among the leading pediatrists of this country as to the effect of the pasteurization of milk on its digestibility and as to whether it renders it less suitable for the feeding of infants. The difference in their opinions being so great it is, of course, impossible to draw any definite conclusions from them.

The only conclusions which seem to me warranted from my study of the subject are as follows:

It is impossible to determine from the evidence at present available whether or not babies fed continuously on pasteurized milk thrive as well as those fed on raw milk or whether or not the continuous use of pasteurized milk predisposes to the development of the diseases of nutrition. There is sufficient evidence to show, however, that if the continuous use of pasteurized milk is injurious to babies, its possibilities for harm are much less than those of bacteria. All but the cleanest milk should, therefore, be pasteurized before it is given to infants. There is, on the other hand, sufficient doubt as to the innocuousness of pasteurized milk to justify the avoidance of pasteurization whenever the character of the milk warrants it. Finally, our knowledge of the whole matter is extremely incomplete and unsatisfactory. The question as to the effect of the pasteurization of milk on the nutrition of infants can only be settled by a much more careful and extensive study of the whole subject, both in the laboratory and clinically, than has hitherto been undertaken.

Clinical Department.

A CASE OF HEMIANOPSIA DUE TO VASCULAR DISEASE.

BY H. P. GREELEY, M.D.

Pilley's Island Hospital, Newfoundland.

The following abstract of a case I recently saw interested me particularly for two reasons,—first, the extreme local character of the disturbance, and secondly, the family disposition to vascular disease.

The patient was a fisherman, G. W., aged 57 years, with the following family history: His father died of hemiplegia at about 55 years of age. One sister died of "shock" at 40 years of age. Another sister had a hemiplegia at 50 years. She is now 52 years old and is in good health, being almost entirely recovered from her paralysis.

The patient has never suffered from any serious diseases, syphilis or gonorrhea, and has never had any previous attack of paralysis or weakness.

Three days before examination the patient suddenly noticed some numbness and weakness in his right leg. This passed off almost immediately but was accompanied by tingling and numbness in the right arm which persisted to a slight degree. At the same time he noticed that he became "right" blind and could see no objects toward the right without turning his head. These symptoms were accompanied by a little dizziness and headache over a period of a couple of days. He had no pain and no other symptoms of constitutional disorder; no nocturia, no vomiting. His habits were good as to alcohol and tobacco.

On examination he proved to be a well built, short, "stocky" man of rugged, weather-beaten countenance.

Pupils.—Regular, circular and react normally.

Lungs.—Normal.

Heart.—Apex impulse in fifth space ½ inch outside nipple line; heaving in character. Dullness corresponds. Right heart 3½ cm. from mid-sternum. Sounds regular in force and rhythm. Aortic second sound sharp and accentuated. Blood pressure 210 mm. of Hg. (Tycos). Radial pulse small and wiry, thickened but not beaded. About 70 to the minute.

Abdomen.—Not remarkable.

Knee Jerks.—Lively and equal. No Babinski response.

Urine.—(Single specimen), normal color; gravity 1017. No albumen (heat test).

No involvement of muscular power in legs or arms.

Examination of the field of vision showed absent visual power in the right half of both eyes. He could not see his nose at all with his left eye and could not see an object with right eye till it was nearly directly in front of him (with eye directed forward).

Ophthalmoscopic examination showed no retinal changes. The retinal arteries were like fine silver cords. The pathological lesion in this case I judged to be a small hemorrhage or thrombosis in the posterior part of the left internal capsule, permanently affecting the optic tracts.

Since I saw this man only once as he was departing for the fisheries, I am unable to give the subsequent history.

On account of the lack of medical literature I cannot compare this with similar cases, so report it in this meagre form.

Reports of Societies.

THE AMERICAN DERMATOLOGICAL ASSOCIATION.

THIRTY-SIXTH ANNUAL MEETING, HELD AT THE BARNARD FREE SKIN AND CANCER HOSPITAL, ST. LOUIS, MO., MAY 23, 24, AND 25, 1912.

The President, Dr. Grover W. Wende of Buffalo in the Chair.

PRESIDENT'S ADDRESS.

Dr. Wende, in his opening address, briefly reviewed the history of American journalism in dermatology. The pioneer in this field was Dr. Morris E. Henry of New York, who in 1870 originated a quarterly journal styled the *American Journal of Syphilography and Dermatology*, devoted to the exposition and study of venereal and cutaneous diseases.

A CRITICAL STUDY OF THE ORGANISMS CULTIVATED FROM THE LESIONS OF HUMAN LEPROSY, WITH A CONSIDERATION OF THEIR ETIOLOGICAL SIGNIFICANCE.

DR. CHARLES W. DUVAL, of New Orleans, presented a paper on this subject, which embraced a critical review of the acid fast organisms that had been cultivated from the lesions of human leprosy in various parts of the world, together with an efficient cultural method which might be of distinct value in the early diagnosis of leprosy. The following conclusions were offered: 1. From a bacteriological study of 29 cases of leprosy, they had cultivated an acid-fast bacillus from 22 of these cases. 2. A chromogenic strain similar in all essentials to that described by Clegg was recovered from 14 cases. 3. Under certain conditions, the Clegg culture grew as (a) non-acid-fast streptothrix; (b) non-acid-fast diphtheroid; and, (c) an acid-fast bacillus. 4. Eight cases yielded an organism which thus far was distinctly different from Clegg's bacillus in its biological character, growing only upon special media and not producing pigment. 5. Animal experiments undertaken for the purpose of differentiating the two types recovered from the human leprous lesion and to fix their etiological status were not regarded by the author as conclusive. 6. Serological tests, especially those performed with highly immune sera, suggested that the leprosy bacillus of Clegg was not related to the non-chromogenic slow-growing culture from leprosy. 7. The rôle played by the chromogenic bacillus of Clegg in the production of leprosy was as yet an unsettled question. 8. The non-chromogenic strain, while behaving according to most of our notions regarding a pathogenic organism, had likewise not up to the present been proven to be the cause of leprosy, although he was impressed with the probability of such a rôle being eventually attributed to it, and he considered that it deserved more serious attention than any strain so far cultivated from the human leprous lesion. 9. The wide variation in morphology and staining reaction for certain cultures which subsequently became rapid growers and chromogenic explained the interpretations of European writers that the bacillus lepræ was a bacterium of such pleomorphism that it could be recognized as a diphtheroid, a streptothrix and an acid-fast bacillus.

DISCUSSION.

DR. ANDREW P. BIDDLE, of Detroit, referred to two cases of leprosy that had recently come under his observation in Michigan, and he stated that the occurrence of these sporadic cases in localities where leprosy was rarely found emphasized the importance of anything that threw more light upon the early diagnosis of the disease.

EXPERIENCE WITH NOGUCHI'S LUTEIN REACTIONS

DR. HOWARD FOX, of New York, said the successful cultivation of the spirochæta pallida by Noguchi had opened up new opportunities for the experimental investigation of syphilis. A direct result of this achievement was the lutein reaction, a diagnostic cutaneous test similar to that of Von Pirquet for tuberculosis. The reaction was produced by the injection of a suspension of the spirochæta pallida that had been grown in pure culture and then destroyed by heat. In his experience with luetin, the speaker said he had followed the technique described by Noguchi in his original communication (*Jour. Exper. Med.*, XIV., 1911). His experience with lutein was limited to 100 cases, 49 of which were cases of acquired syphilis, while the others were used as control cases and were suffering from various non-specific diseases of the skin. In 14 cases of active secondary syphilis, the lutein reaction was positive in six cases, or 43 per cent.; the Wassermann reaction was positive in 100 per cent. of the cases. In 33 cases of tertiary and latent syphilis, the lutein reaction was positive in 17, or 51 per cent.; negative in 14 and doubtful in two. The Wassermann reaction showed varying degrees of positiveness in 19, or 65 per cent., and was negative in 10. In four it was not performed. Most of the patients in whom a positive reaction occurred had continued up to the present time to show a bluish macule or tiny keloid at the point of the injection. Dr. Fox said that before an opinion of real value could be expressed upon the lutein reaction, it would be necessary to study the results of a very large number of clinical investigations.

ERYTHEMA AB IGNE.

DR. M. B. HARTZELL, of Philadelphia, said that although most English and American treatises on diseases of the skin mentioned briefly the reticulate erythema and pigmentation which might follow the long-continued application of heat to the skin, very little was to be found about this curious and rather interesting affection in dermatological literature. French and German authors of recent treatises on diseases of the skin did not mention it at all. Indeed, the English dermatologists were apparently the only ones who saw it with any degree of frequency, and they were, consequently, the only ones who seemed to have a real practical acquaintance with it. While the malady was found principally in those who had exposed the skin to the heat of the stove or furnace, and in consequence was usually situated on the legs, it might follow exposure to other sources of heat and might be found in other situations. In one of the four cases reported by Dr. Hartzell the disease was situated in the lumbar and sacral regions, and had followed the long-continued application of a hot water bag. It was worthy of note that in all four of the cases here reported the patients were decidedly below the normal standard of health, either as the result of previous

illness, alcoholism or old age, and this seemed to be true generally. Indeed, he doubted very much whether the disease could occur in an ordinarily healthy individual. Although the inflammation rarely passed beyond the erythematous stage, it might go on to decided thickening and even vesiculation. The result of the pathological examinations showed very clearly that the affection was an inflammatory one, and not simply a staining of the skin, as had been claimed.

THE SINGLE-DOSE X-RAY METHOD.

DR. GEORGE M. MACKEE AND DR. JOHN REMER, of New York, stated that the term single-dose x-ray method did not mean that the maximum amount of benefit must necessarily follow a single application. It was intended to signify a radical departure from the former fractional-dose method where small and repeated applications were made until the desired result was obtained. This often necessitated from fifteen to a hundred or more exposures in the treatment of a small rodent ulcer. With the single-dose method, on the other hand, from one to four treatments might be required in the treatment of a given lesion. Furthermore, a definite attempt was made to measure the amount of x-ray administered, so that the method was scientific and was associated with a certain degree of accuracy. Roughly speaking, there were two methods of administering the massive or single x-ray dose: one in which the quality of the rays was ascertained by the use of instruments, while the quantity was estimated by the duration of the exposure, the amount of current employed and the distance of the tube from the lesion: the second method consisted of employing the usual qualitative instruments, with the addition of estimating the quantity by the use of pastilles composed of platino-cyanide of barium. Although both methods were difficult, and neither could be said to be absolutely accurate, the first was certainly the more unreliable, and was associated with more troublesome and perplexing details. After describing the technique of both of these methods, the authors passed on to the advantages of the single-dose method, by which it was now possible to obtain adefluvium of the entire scalp in from sixteen to twenty-five minutes. The entire surface of the body, if necessary, could be given a normal dose in a very short time. This possibility, however, could not be made use of in diseases such as mycosis fungoides, for fear of causing toxic symptoms. In this condition, where there were many lesions, it was only necessary to expose each lesion once, the treatments being given once or twice a week. Sycosis would usually heal under the influence of a single epilating dose. In epithelioma, under the old fractional-dose method, the tumor or ulcer would often improve for a while, and then continue to grow worse in spite of additional treatment. This does not appear to be the case since the advent of the single-dose method. By this method, better results were obtained in many of the cutaneous diseases amenable to x-ray treatment, but it was not successful, so far as the authors were aware, in curing cutaneous affections that were not benefited by the older method. The technique of the single-dose method was difficult and exacting, and the novice was advised to become thoroughly acquainted with it through experimental work before employing it in practice.

DISCUSSION.

DR. WILLIAM A. PUSEY, of Chicago, said the results of his own work with the x-ray led him to favor the fractional-dose method, and while he saw no great objection to giving a dose large enough to effect the cure of lesions covering small areas, he would not care to expose large areas, such, for example, as that over a leukemic spleen, to such a method of treatment. He was glad to hear of the efforts that were being made to secure more scientific accuracy in our x-ray dosage, but he still believed that the most important factor in order to obtain results from radiotherapy was personal, first-hand familiarity with the technique.

DR. JOSEPH ZEISLER, of Chicago, said he thought Dr. MacKee had sounded the key-note when he advanced the proposition that some day there would be a distinct radio-therapeutic speciality. We, as dermatologists, would probably never be able to make practical use of these methods, and he did not believe they would ever become popular with practitioners, as a class. The work would have to be turned over to certain men, skilled in this special line.

DR. L. DUNCAN BULKLEY, of New York, described the work of Dr. Colcott Fox and Sabouraud with the single-dose x-ray method of treating ringworm and favus. In London he saw hundreds of cases of ringworm treated by this method, and he was assured that there were practically no recurrences. As Sabouraud's clinic in Paris there were originally 300 beds, which by this method of treatment had been reduced to 200, then to 100 and finally to 50: in other words, they were exhausting the supply of cases of ringworm in Paris.

PELLAGRA.

BY DR. OLIVER S. ORMSBY, of Chicago. This paper was an abstract of the work done by the Pellagra Commission appointed in 1909 by Governor Charles S. Deneen to investigate the disease as it was exhibited in the State of Illinois. As the result of the investigation of the Commission, the conclusion reached was that pellagra was a disease which appeared to be due to infection with some living micro-organism, possibly of protozoal character. A possible habitat for this parasite in man was in the wall of the intestine. The most plausible view of the mode of entry into the body was by way of the blood stream. The part played by insects was conjectural. The number of cases of known pellagra rendered this disease a decided menace to the public health of the State of Illinois, and it seemed important, therefore, that a careful search should be made for cases outside of the state hospitals, and that physicians everywhere should be informed concerning the possible development of a disease that had been a national calamity in Italy for one hundred and fifty years.

DISCUSSION.

DR. JOSEPH ZEISLER, of Chicago, said the subject of pellagra was not merely of local interest. He recently saw a young woman from Muskegon, Mich., who was undoubtedly suffering from pellagra. His treatment in this case consisted principally of the internal administration of iron and arsenic, and he had lately received a letter from the patient stating that she was now practically well.

ACANTHOSIS NIGRICANS, WITH REPORT OF A CASE.

Dr. Alfred Schalek, of Omaha, reported this case in detail. The first description of the disease was made simultaneously and independently by Pollitzer and Janovsky in 1890. The disease was of special interest and importance on account of its almost constant association with malignant neoplasms. This complication was usually known at the time of or even before the skin manifestations, but in some instances there was no suspicion of its presence until a tentative diagnosis of the skin changes caused a successful search for it. The pathognomic cutaneuos symptoms, more or less always present were wide-spread pigmentation, hypertrophy of the papillary layer of the skin, and hyperkeratosis of the horny layer. Less constant were affections of the mucous membranes and dystrophies of the appendages, the hair and nails.

SEBORRHŒA CAPITIS.

Dr. George Thomas Jackson and Dr. Charles Wood McMurtry, of New York, stated that until recent times, systematic writers, following the teaching of Hebra, had described a seborrhœa oleosa and a seborrhœa sicca. It had not escaped the notice of scores of observers that sometimes there were signs of inflammation added to the usual symptoms of seborrhœa of the scalp, and authors wrote of this as seborrhœa sicca, with inflammation. In the course of time, Unna presented for our consideration his seborrhœal eczema, and opened a new field of controversy. The authors then referred to Sabouraud's scientific investigations of seborrhœal diseases, and said that instead of one disease, the seborrhœa of Hebra, with its oily, dry and inflammatory forms, we now had four diseases, namely, seborrhœa, pityriasis simplex capitis, pityriasis steatodes, and seborrhœa dermatitis. There was but one form of seborrhœa, and that was the oily form, the seborrhœa oleosa of the older writers. In this disease, the scalp and hair appear abnormally greasy or oily, the degree varying in different cases. The skin of the forehead and nose was also oily and shiny, and inspection of the scalp showed marked dilatation of the pilo-sebaceous follicles. In pityriasis simplex capitis the hair may be of normal appearance, but it is usually dry and lustreless. Throughout the entire hair growth, white or gray scales were seen, which clung to the hair like powder, coarse grains of sand, or thin, small, bran-like plates. They were readily brushed off, and fell about the coat collar and shoulders like powder. The scalp was absolutely devoid of inflammation. This condition was often spoken of as dandruff, and sometimes as seborrhœa sicca. In pityriasis steatodes the scalp was covered with coarse and large yellow or amber colored scales of a distinctly greasy nature, that often heaped up into crusts. They might be present in enormous amount. They tended to adhere to the scalp and did not brush off easily. The scalp under them might be normal in color, or it might be rosy and slightly moist. There was no redness, swelling nor vesiculation. The whole scalp was usuallly involved, and the disease might extend beyond the hair-line. Pruritus of mild degree was experienced, and loss of hair resulted. Seborrhœa often complicated matters, and pityriasis steatodes might develop into seborrhœal dermatitis or even eczema. In dermatitis seborrhoica the disease began on the scalp as small patches, either singly or in groups; these grew peripherally and coalesced to form large, polycyclic or serpiginous lesions, covered more or less completely with rather coarse, soft, loosely adherent yellow and distinctly greasy scales or crusts. The latter tended to adhere to the hairs and matted them together. The whole scalp might be involved, but more commonly there were a number of well-defined patches surrounded by normal colored but scaly skin. The diseased scalp was red or yellowish red. A mild degree of pruritus was complained of, and loss of hair eventually occurred. The disease might spread widely over the body, and was commonly seen on the face and eye-brows.

DISCUSSION.

Dr. George M. MacKee, of New York, referring to the treatment of seborrhœa capitis, said that aside from the local application of ordinary disinfectants, such as the bichloride of mercury, he had found the high-frequency spark and the actinic rays of value, not as a disinfectant, but as a stimulant to help restore the hair and stimulate the scalp. In applying disinfectants, we produced a hyperæmia from the action of the resorcin or other drugs: this was very fleeting in character, but with the actinic rays and the high-frequency spark we produced a hyperæmia which lasted for twenty-four hours. In this connection, we should make a distinction between congestion and hyperæmia, as in the latter condition the circulation was more active.

Dr. Charles J. White, of Boston, said it was a comparatively simple thing to cure these cases in children. In the adult, however, it was almost impossible, and the treatment had to be continued indefinitely.

Dr. S. Pollitzer, of New York, thought the great difficulty we all experienced in seborrhœal conditions of the scalp was due to the fact that we did not recognize the importance of the germ element in the causation of the disease. If we would treat a seborrhœa of the scalp with the idea that we were dealing with an infectious disease, and that the infective agent was in the hair follicle—not on the surface—and furthermore, was surrounded by a very thick, impervious sebaceous and horny mass, then we might be stimulated to treat these cases more energetically.

Dr. E. S. Lain, of Oklahoma City, said he had been making a study of the skin lesions among the American Indians in Oklahoma, and had examined about 4000 persons, many of them school children, in whom he made a particular note as to the presence or absence of seborrhœa. Among the older Indians, who used their fingers or a thorn instead of a comb, seborrhœa was practically unknown, while among the Indian school children, who were confined to the schools under strict regulations and were taught to use the common comb and brush, seborrhœa of the scalp was present in from 65 to 75 per cent.

Dr. Pollitzer said that so far as he knew, seborrhœa was unknown among the lower animals and did not occur among savages generally. It belonged to civilized life. That seborrhœa did not always produce baldness was of course well known. The deleterious effect on the hair and its vitality was due to the seborrhœal organism. If there was a vigorous growth of hair, this deleterious effect was not sufficient to destroy it: this was commonly the case in women and the same was true of the beard in man. These structures were secondary sexual characters, in the Darwinian sense, and possessed greater

illness, alcoholism or old age, and this seemed to be true generally. Indeed, he doubted very much whether the disease could occur in an ordinarily healthy individual. Although the inflammation rarely passed beyond the erythematous stage, it might go on to decided thickening and even vesiculation. The result of the pathological examinations showed very clearly that the affection was an inflammatory one, and not simply a staining of the skin, as had been claimed.

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DR. L. DUNCAN BULKLEY, of New York, described the work of Dr. Colcott Fox and Sabouraud with the single-dose x-ray method of treating ringworm and favus. In London he saw hundreds of cases of ringworm treated by this method, and he was assured that there were practically no recurrences. As Sabouraud's clinic in Paris there were originally 300 beds, which by this method of treatment had been reduced to 200, then to 100 and finally to 50: in other words, they were exhausting the supply of cases of ringworm in Paris.

PELLAGRA.

BY DR. OLIVER S. ORMSBY, of Chicago. This paper was an abstract of the work done by the Pellagra Commission appointed in 1909 by Governor Charles S. Deneen to investigate the disease as it was exhibited in the State of Illinois. As the result of the investigation of the Commission, the conclusion reached was that pellagra was a disease which appeared to be due to infection with some living micro-organism, possibly of protozoal character. A possible habitat for this parasite in man was in the wall of the intestine. The most plausible view of the mode of entry into the body was by way of the blood stream. The part played by insects was conjectural. The number of cases of known pellagra rendered this disease a decided menace to the public health of the State of Illinois, and it seemed important, therefore, that a careful search should be made for cases outside of the state hospitals, and that physicians everywhere should be informed concerning the possible development of a disease that had been a national calamity in Italy for one hundred and fifty years.

DISCUSSION.

DR. JOSEPH ZEISLER, of Chicago, said the subject of pellagra was not merely of local interest. He recently saw a young woman from Muskegon, Mich., who was undoubtedly suffering from pellagra. His treatment in this case consisted principally of the internal administration of iron and arsenic, and he had lately received a letter from the patient stating that she was now practically well.

ACANTHOSIS NIGRICANS, WITH REPORT OF A CASE.

Dr. Alfred Schalek, of Omaha, reported this case in detail. The first description of the disease was made simultaneously and independently by Pollitzer and Janovsky in 1890. The disease was of special interest and importance on account of its almost constant association with malignant neoplasms. This complication was usually known at the time of or even before the skin manifestations, but in some instances there was no suspicion of its presence until a tentative diagnosis of the skin changes caused a successful search for it. The pathognomic cutaneuos symptoms, more or less always present were wide-spread pigmentation, hypertrophy of the papillary layer of the skin, and hyperkeratosis of the horny layer. Less constant were affections of the mucous membranes and dystrophies of the appendages, the hair and nails.

SEBORRHŒA CAPITIS.

Dr. George Thomas Jackson and Dr. Charles Wood McMurtry, of New York, stated that until recent times, systematic writers, following the teaching of Hebra, had described a seborrhœa oleosa and a seborrhœa sicca. It had not escaped the notice of scores of observers that sometimes there were signs of inflammation added to the usual symptoms of seborrhœa of the scalp, and authors wrote of this as seborrhœa sicca, with inflammation. In the course of time, Unna presented for our consideration his seborrhœal eczema, and opened a new field of controversy. The authors then referred to Sabouraud's scientific investigations of seborrhœal diseases, and said that instead of one disease, the seborrhœa of Hebra, with its oily, dry and inflammatory forms, we now had four diseases, namely, seborrhœa, pityriasis simplex capitis, pityriasis steatodes, and seborrhœa dermatitis. There was but one form of seborrhœa, and that was the oily form, the seborrhœa oleosa of the older writers. In this disease, the scalp and hair appear abnormally greasy or oily, the degree varying in different cases. The skin of the forehead and nose was also oily and shiny, and inspection of the scalp showed marked dilatation of the pilo-sebaceous follicles. In pityriasis simplex capitis the hair may be of normal appearance, but it is usually dry and lustreless. Throughout the entire hair growth, white or gray scales were seen, which clung to the hair like powder, coarse grains of sand, or thin, small, bran-like plates. They were readily brushed off, and fell about the coat collar and shoulders like powder. The scalp was absolutely devoid of inflammation. This condition was often spoken of as dandruff, and sometimes as seborrhœa sicca. In pityriasis steatodes the scalp was covered with coarse and large yellow or amber colored scales of a distinctly greasy nature, that often heaped up into crusts. They might be present in enormous amount. They tended to adhere to the scalp and did not brush off easily. The scalp under them might be normal in color, or it might be rosy and slightly moist. There was no redness, swelling nor vesiculation. The whole scalp was usuallly involved, and the disease might extend beyond the hair-line. Pruritus of mild degree was experienced, and loss of hair resulted. Seborrhœa often complicated matters, and pityriasis steatodes might develop into seborrhœal dermatitis or even eczema. In dermatitis seborrhoica the disease began on the scalp as small patches, either singly or in groups; these grew peripherally and coalesced to form large, polycyclic or serpiginous lesions, covered more or less completely with rather coarse, soft, loosely adherent yellow and distinctly greasy scales or crusts. The latter tended to adhere to the hairs and matted them together. The whole scalp might be involved, but more commonly there were a number of well-defined patches surrounded by normal colored but scaly skin. The diseased scalp was red or yellowish red. A mild degree of pruritus was complained of, and loss of hair eventually occurred. The disease might spread widely over the body, and was commonly seen on the face and eye-brows.

DISCUSSION.

Dr. George M. MacKee, of New York, referring to the treatment of seborrhœa capitis, said that aside from the local application of ordinary disinfectants, such as the bichloride of mercury, he had found the high-frequency spark and the actinic rays of value, not as a disinfectant, but as a stimulant to help restore the hair and stimulate the scalp. In applying disinfectants, we produced a hyperæmia from the action of the resorcin or other drugs: this was very fleeting in character, but with the actinic rays and the high-frequency spark we produced a hyperæmia which lasted for twenty-four hours. In this connection, we should make a distinction between congestion and hyperæmia, as in the latter condition the circulation was more active.

Dr. Charles J. White, of Boston, said it was a comparatively simple thing to cure these cases in children. In the adult, however, it was almost impossible, and the treatment had to be continued indefinitely.

Dr. S. Pollitzer, of New York, thought the great difficulty we all experienced in seborrhœal conditions of the scalp was due to the fact that we did not recognize the importance of the germ element in the causation of the disease. If we would treat a seborrhœa of the scalp with the idea that we were dealing with an infectious disease, and that the infective agent was in the hair follicle—not on the surface—and furthermore, was surrounded by a very thick, impervious sebaceous and horny mass, then we might be stimulated to treat these cases more energetically.

Dr. E. S. Lain, of Oklahoma City, said he had been making a study of the skin lesions among the American Indians in Oklahoma, and had examined about 4000 persons, many of them school children, in whom he made a particular note as to the presence or absence of seborrhœa. Among the older Indians, who used their fingers or a thorn instead of a comb, seborrhœa was practically unknown, while among the Indian school children, who were confined to the schools under strict regulations and were taught to use the common comb and brush, seborrhœa of the scalp was present in from 65 to 75 per cent.

Dr. Pollitzer said that so far as he knew, seborrhœa was unknown among the lower animals and did not occur among savages generally. It belonged to civilized life. That seborrhœa did not always produce baldness was of course well known. The deleterious effect on the hair and its vitality was due to the seborrhœal organism. If there was a vigorous growth of hair, this deleterious effect was not sufficient to destroy it: this was commonly the case in women and the same was true of the beard in man. These structures were secondary sexual characters, in the Darwinian sense, and possessed greater

vitality than the hair on the head of a man, which was analogous in respect to the vermiform appendix, and of no great importance.

DR. JACKSON, in closing, said he had no doubt regarding the infectious nature of seborrhœa, and that the proper care of the hair had much to do with its preservation. After the infection had once extended down to the hair follicles, a cure was difficult, if not impossible, and the best we could do was to keep the scalp in such a condition that when these parasites got on it, they would have no chance to grow.

(To be continued.)

Book Reviews.

Memorias do Instituto Oswaldo Cruz. Vol. III, No. 2. Munquinhos, Rio de Janeiro. 1911.

This annual volume comprises a series of ten papers in Portuguese, French and German, recording original research work done at the Institute. Their titles are "Notes on the Ixodidea of Brazil," "Studies on Tuberculosis," "A Newly Discovered Disease Process of Man" (Schizotrypanosis, a parasitic thyroiditis), "The Pathologic Anatomy of Chagas Disease" (the same as the preceding), "Contributions to the Knowledge of the Blood-Sucking Diptera," "Contribution to the Study of the Dematomycoses of Brazil," "Study on Alastrim," "Employment of Biologic Methods in the Diagnosis of Cysticercosis," "Statistic Studies on the Frequency of Intestinal Parasites in Children in Rio de Janeiro," and "Cytologic Studies on Trypanosoma Chagasi." Of particular interest are the three papers dealing with the newly described Chagas Disease, a trypanosomatosis with thyroid manifestations, suggesting confirmation of the possible infectious origin of other forms of endemic goitre. The work is illustrated with nineteen excellent plates, many of them colored, and should be of value to biologic and laboratory students.

A Cyclopedia of American Medical Biography. Comprising the Lives of Eminent Deceased Physicians and Surgeons from 1610 to 1910. By HOWARD A. KELLY, M.D. Illustrated with Portraits. Two Volumes. Philadelphia and London: W. B. Saunders Company. 1912.

This valuable work took origin five years ago in the author's realization of the need of " a new biographical cyclopedia, giving a brief outline of the lives of our departed medical worthies." It meets this need admirably and fully, comprising the names of over 1200 men and women, each "distinguished either as an original thinker, or writer, or as a teacher or great leader in medicine" in the United States or in Canada. Among these are included also "a number of the hardy pioneers who did great work with insufficient means and assistance in the border countries in the early days; those of our craft who after taking a degree have not practised medicine but have become eminent in some other branch of science; and a few who have done no special original work but who attained great local prominence and widely influenced their fellows by a strong personality." Of all these are presented biographic sketches, averaging half a page in length, with reference to sources for further data in each case, and with occasional portrait engravings.

In the work of compilation, Dr. Kelly has been assisted by some forty collaborators from different sections of the country, and the actual biographies, which are all signed by initials, have been written by 235 different authors; but the resulting variety of style and treatment is an attraction rather than a disadvantage, since unity is given to the work by its purpose and by the personality of Dr. Kelly. Preceding the collection of biographies is an introductory history of medicine and of the more important medical specialties in America, written also by several colaborers in conjunction with Dr. Kelly.

The selection of names for this biographic cyclopedia has been made with admirable judgment. The accidental omission of Dr. Henry I. Bowditch, of Boston, has been already explained in a letter by Dr. Kelly (printed in the issue of the JOURNAL for April 11, 1912), and will be rectified in the second edition. In the many subsequent editions which so valuable a work is sure to have, it is to be hoped that there will be added from time to time biographies of other noted American men of medicine as they pass from their labors.

Dr. Kelly's book does not in any sense replace previous works, such as Dr. Mumford's, on The History of American Medicine; rather it augments and completes them by placing in available form the consecutive life-story of those names in the profession whose memory "men will not willingly let die." It is a worthy, distinguished and permanent contribution to the literature of American medical biography.

Fresh Air and How to Use It. By THOMAS SPEES CARRINGTON, M.D. New York: The National Association for the Study and Prevention of Tuberculosis. 1912.

This volume is an attempt to demonstrate, by description and illustration, the various methods and devices by which, under the artificial conditions of civilization, every individual may contrive to obtain the supply of fresh air which, under natural conditions, should be his inalienable and inevitable right. It is based on the important conception that fresh air is a valuable agent not only in the cure, but in the prevention of disease. There is an excellent brief preface by Dr. Livingston Farrand, executive secretary of the Association by which the book is published. The full-page frontispiece shows an attractive tree-house for open-air living and sleeping, and there are 150 smaller figures in the text. The work should prove an exceedingly valuable manual not merely for consumptives, but for all who, for the sake of the continuance and improvement of their good health, are interested in more wholesome and invigorating modes of life.

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EXHIBIT ON THE HYGIENE OF OCCUPATIONS.

THE Exhibit of the Massachusetts State Board of Health on the Hygiene of Occupations, displayed at Washington, D. C., at the Fifteenth International Congress on Hygiene and Demography, was one of the most prominent exhibits in the exhibition hall, attracting far more attention than any other state exhibit on the subject, and receiving many favorable comments from persons seeking subjects and exhibits of an entirely different nature.

Accompanying this occupational exhibit was an attractive illustrated pamphlet describing the photographs, photomicrographs, charts and occupational dust specimens exhibited.

The general purpose of the exhibit was educational. The photographs and materials presented had three distinct aims: (1) to show conditions surrounding persons who work in the most sanitary establishments in some of the leading industries in Massachusetts; (2) to make clear the possibility of preventing diseases and pathological changes which now accompany certain occupations and manufacturing conditions; (3) to demonstrate that factory hygiene is a part of community hygiene. The exhibit illustrated conditions within the factory that are of special interest to the sanitarian in connection with model sanitary home conditions in factory communities.

The exhibit also contained photographs of model factory communities, showing old and modern homes of a comfortable and satisfactory type for persons who work in manufacturing establishments.

Dust in its infinite variety as it occurs in modern industrial life, and the great havoc it plays in the industrial workers was one of the striking features of the exhibit.

Forty different occupational dusts collected by the Massachusetts health authorities in the course of an intensive study of occupational hygiene were exhibited, together with the same number of photomicrographs showing the particles of dust enlarged 164 times. In these photomicrographs was clearly to be seen the different characteristics of the irritating and poisonous dusts that occur in the manufacturing processes of the textile, boot and shoe, and other Bay State industries. Accompanying the photomicrographs were photographs of the peculiar processes giving rise to the dust, which in its turn had given rise to the numerous diseases of the lung and air passages so prevalent among the present day factory workers.

As a kind of text for the photomicrographs, the first wing of a large display fixture bore an enlarged photograph of healthy lung tissue, following which were enlarged photographs of sections of the lungs of metal workers who had been exposed for years to fine steel and iron dusts, bringing on a pathological condition of the lung tissue known as fibrosis.

Specimens of dust exhibited were classified in two main groups, the irritating and the poisonous. The first group, which included dusts of vegetable, animal, metallic and mineral origin, was the more common. Dust in the poisonous group was of metallic and mineral origin. Among the actual dust specimens shown were cotton, broom corn, rattan, granite, steel, iron, emery, and the many kinds of dust that were encountered in the boot and shoe industry. Samples of brass, zinc and lead were representatives of the poisonous group. Interesting in this connection was the photograph of a man at work in the manufacture of storage batteries. He had been found by a State Inspector of Health to be suffering from lead poisoning. He was advised to wear the respirator which was seen in the picture.

Apart from the exhibit on dust, the Massachusetts State Board of Health contributed a wealth of material on the general subject of hygiene of occupation. In the exhibit were nearly 100 photographs considering factory hygiene in its many phases. The pictures illustrated processes that were intrinsically dangerous to health, processes carried on under conditions that lead

indirectly to disease, means and devices to remedy certain avoidable conditions, and finally conditions which are found in the most sanitary establishments in Massachusetts, and which find their culmination in the model factory community.

Among the interesting photographs were series showing the processes, in more or less detail, of the manufacture of cotton and woolen cloth in modern mills where the sanitary conditions were ideal as to light, dust-removal, regulation of humidity, removal of gases, etc.

Another group of pictures was of the various processes in shoe manufacturing that give rise to dust. In some instances the operatives were seen to be covered from head to foot with the flying particles, whereas in other instances they were protected by a well regulated dust-removal system which, however, might not always be as efficient as some of the photographs indicated.

Dusty processes in the horn, hat making, woodworking and metal polishing industries were also illustrated.

A large group of photographs showed processes where workers were exposed to irritating and poisonous fumes and gases. That such exposure is sometimes needless could be seen from the pictures of stitching rooms in two shoe factories. In the first the girls were exposed to the odor of poisonous naphtha from open bowls of cement; in the second the same work was seen to be done with patent cans designed to diminish the odor of naphtha.

An example of unavoidable conditions was the photograph of the casting of "yellow brass" where the air was filled with dense gray fumes that were inhaled by the worker.

Another instance of how the willing employer might remedy the dangerous yet avoidable conditions was seen in two pictures of laundries, the first one showing an effective protection against excessive heat and humidity through a set of exhausts, and the second one an absolute lack of the same.

The great attention given by the Massachusetts authorities to proper lighting conditions in factories and the prevention of eye injuries was indicated by the group of photographs showing operatives at work wearing goggles, or protected by a glass hood or wearing a wire mask. An ingenious device called the photometer was shown, with which can readily be computed the exact amount of light under which an operative is working.

Tenements and workrooms where clothing is made were illustrated, from the typical sweat shop to the model sanitary plant.

Ideal conditions in machine shops were shown in several photographs, while others portrayed good and bad conditions in bakeries, foundries and other workshops.

What was admittedly the ideal industrial condition from a hygienic viewpoint was depicted in the series of pictures showing model industrial communities with good and comfortable homes for the workers and generally good sanitary conditions surrounding the whole industrial life.

CONSERVATION AND EVOLUTION.

THE Fourth International Conservation Congress held its sessions last week from Oct. 2 to 5 inclusive, at Indianapolis, Ind. The keynote of its meeting was the conservation of human life. This was emphasized both by President J. B. White in his annual address and by Dr. Harvey W. Wiley, who said in his remarks:—

"What is in sight in the way of the prolongation of life? Is there any hope to be offered to man of greater freedom from disease and of a longer life? I answer unhesitatingly in the affirmative. Why should he be content with an average life of 44 years? There is historical evidence to show that man's greatest activities are developed with experience, and that the age between sixty and seventy is more productive for one who has lived in accordance with nature. It is shown from statistics that we die sixteen years before we reach the maximum usefulness of man. I would like to see more old age. I would like to see more men and women with gray hair and more wrinkled faces than I see today.

"To all this, objection may be made that a place must be made for the young man and young woman; that the old man and woman keep the young from development and usefulness. But to this I reply that there is infinite opportunity for good work offered to all. If we can secure a race free from disease, endowed with all those qualities of mind and body which make for human efficiency, we need not ask that everyone become eminent and wealthy, but each can perform the duties which come to him in a way to develop a uniform excellence of the human race."

In similar strain, Dr. Irving Fisher, professor of political economy at Yale, spoke of the Swedish achievements in national hygiene, as evidenced by their racial superiority at the recent Olympic games.

"Probably the greatest hygienic achievements of any country thus far is that of Sweden, where

the duration of life is the longest, the mortality the least and the improvements the most general. There alone can it be said that the chances of life have been improved for all ages of life. Infancy, middle age and old age today show a lower mortality in Sweden than in times past, while in other countries, including the United States, although we can boast of some reduction in infant mortality, the mortality after middle age is growing worse and the innate vitality of the people is, in all probability, deteriorating.

"In the United States, public health has been regarded almost exclusively as a matter of protection against germs; but protection against germs, while effective in defending us from plague and other epidemics of acute diseases, is almost powerless to prevent the chronic diseases of middle and late life.

"These maladies—Bright's disease, heart disease, nervous breakdowns—are due primarily to unhygienic personal habits. Medical inspection and instruction in schools, as well as Swedish gymnastics, have aided greatly in the muscular development of the citizens of Sweden. Swedish hard bread has preserved their teeth. The Gothenburg system is gradually weaning them from alcohol. There has even been a strong movement against the use of tobacco.

"There are three great agencies to which we must look for the saving of human life in the future, and it has been the object of the Committee of One Hundred on National Health, of which I am president, to help stir these three agencies into activity in this country. They are the public press, the insurance companies and the Government. A few years ago popular articles on public health were seldom seen, because the public and the press thought the subject of disease uninteresting and repulsive. Today, on the other hand, one can scarcely pick up a popular magazine without finding not only one but several articles dealing with questions of public health.

"Life insurance companies can save money by preventing deaths, just as fire insurance companies have saved money by preventing fires and steam boiler insurance companies have saved money by preventing explosions. We need a national department of health or a department of labor which shall include in its operations the conservation of human life. We need first of all to do what Sweden has done for 150 years, namely, to establish proper vital statistics."

Perhaps Prof. Fisher takes matters a little too seriously in his declaration that American vitality is deteriorating, but he seems quite right in urging the enlistment of all possible agencies for the diffusion of popular education on health topics and the prevention of the grosser forms of human economic waste.

Other aspects of this same question were treated by Mr. E. E. Rittenhouse, conservation commissioner of the Equitable Life Assurance Society, in his address on "Human Life as a National Asset." "Human life," he asserted, "is our paramount asset, and its conservation should be your paramount issue."

"The first item in humanity's bill of rights is the right to live. To protect human life from needless destruction is the primary purpose of organized society. We are not only reducing the fertility of our race and also shortening the span of life, but we are permitting at least 650,000 American lives to be destroyed annually which we could save by the application of simple and well-known sanitary and other precautions. This is our real race suicide problem. These conditions will not be arrested automatically. The problem will not solve itself. The people alone can check this continuing waste of national efficiency and vitality. Greater efforts must be made to impress them with the facts and to arouse them to more effective action. The economic loss is stupendous, but it is insignificant compared to the misery, suffering, poverty, immorality and crime which result from the needless sickness and premature death from which the nation is now suffering."

True as all these statements doubtless are, there is still, however, always the converse to be remembered: that nature shows invariably an immense faculty for regeneration which in the long run overbalances the tendency to degeneration; that it is by cunning adaptation to apparently unfavorable elements of environment that evolution makes its progress; and that biologically, as well as spiritually, it is sometimes he that is willing to lose his life who saves it at the last. The true end of conservation is to curtail needless waste in the process of evolution, rather than materially to alter its course.

MEDICINE AND ELECTRICITY.

Ever since the day when the properties of amber caused its name to be given to the mysterious force that seemed to emanate from it, the phenomena of electricity have remained perhaps the most marvellous of the inanimate world. The recognition of the identity between the lightning flash and the tiny spark that crinkles from the cat's fur in cold weather was but the first step in a long chain of discoveries and inventions, many of which still seem almost supernatural in their wonder. The telephone and the wireless telegraph are unquestionably two of the most important agents in modern life. The growth of modern industrialism has

kept pace with the increasing applications of electricity for light, heat and power. The development of electricity has made modern civilization possible. Electricity seems truly like the vital force of the universe,

"Whose secret presence through creation's veins,
Running quicksilver like, eludes your pains."

It is for such reasons that a more than economic interest attaches to the Electric Show now in progress in Boston. This remarkable exhibit is not merely a dazzling marvel to the eye, but a compelling demonstration of the ingenuity of man in his controlling dominance over the forces of the universe which surrounds him. The Franklin who wrested the secret of electricity from the clouds was a peer of the Prometheus who stole fire, the secret of combustion, from the gods. Perhaps we really understand the nature of fire as little as we do that of electricity, but we can apply them both equally to serve our ends.

Among the many applications of electricity it is not surprising that medicine should have claimed its share. There is unfortunately much in the semi-occult nature of electricity which lends itself to charlatanism in medicine; but it has a growing field of legitimate uses, too. One of these is in the electromagnet for removing steel fragments from the eye; another is the electric cystoscope; another the neurologic battery for testing nerve-muscle reactions. The analogy of nerve-energy and electricity is obvious to all, and perhaps even the nature of thought itself is more nearly akin to electricity than to any other physical phenomenon.

The field of electro-therapeutics has thus far been exploited almost more by the charlatan than by legitimate medicine, yet this should not bring it into undeserved disrepute with the profession. There are many useful modes of applying electricity therapeutically as well as diagnostically in medicine, and devices and appliances for doing this should enlist medical attention. Apart from the popular, economic, industrial, and general scientific interest attaching to it, therefore, physicians should find in the present Electric Show in Boston much that is of professional importance.

THE STUDY OF PELLAGRA.

IN last week's issue of the JOURNAL (Vol. clxvii, p. 483), we referred editorially to the second triennial meeting of the National Association for the study of pellagra, then in session at Columbia, S. C. This congress proved highly successful, its papers, systematically arranged, forming a comprehensive study of the etiology, epidemiology, statistics, local history, diagnosis, laboratory investigation, clinical features, treatment and miscellaneous aspects of pellagra. On Thursday evening, Oct. 3, there was an address by Surgeon-General Rupert Blue, of the United States Public Health Service.

It is interesting to note that almost synchronously was held the Fifth Italian Congress on Pellagra, in September, at Bergamo, Italy.

"It was the occasion for the exposition of new views upon the etiology of the disease and also for an account of the success in the field of preventive medicine of measures based upon the old views of the school of Lombroso. Dr. Guido De Probizer, medical officer of health for the district of Trentino in Lower Tyrol, detailed the measures taken by the Austrian authorities for the eradication of the disease, and bore witness to the success with which these measures were meeting. The most important were the provisions of ovens to dry the maize and of dry buildings for its storage, with shops for its sale or exchange against maize diseased or of inferior quality. Professor Tizzoni gave an account of his work upon the causation of pellagra, and explained his views. He has discovered the bacterium which he considers the cause of the disease in 55 cases in the blood in man. He would not say whether or not this bacterium came from diseased maize, but from experiments on guinea pigs he was of opinion that a diet of maize facilitated infection. In his view there is, first, a focus of infection in the intestine produced by this bacterium, which passes thence into the blood. As a rule, there is often thus a period of latency due to the immunising powers of the body, but these from various causes may fail sooner or later and the infection declare itself clinically."

The study of this grave disease is one of the important medical problems of the day, and it is being most actively prosecuted in Italy and in the United States.

FRESH EGGS.

NOTHING seems easier to prescribe than fresh eggs. Perhaps no other food except milk is so widely employed or so useful in the dietary of invalid and convalescent as well as in health. Yet if one is asked on just what the freshness of an egg depends the answer is by no means easy. Milk has been the subject of endless investigation, so that now fresh pure milk implies a definite standard. But until recently an egg was

held to be fresh until it was evidently rotten, and even then it was considered by some only esthetically unwholesome. A consignment of frozen eggs recently condemned because infected with colon bacilli, were described as "being decomposed, rotten and unfit for food purposes," yet the case was lost because "it was shown that cakes and pastry could be made from such eggs and the product, because it was mixed with sugar, did not give off the odor of rotten eggs."

A recent investigation by R. C. Rosenberger[1] shows that a definite standard of purity and wholesomeness is applicable to eggs, and affords some interesting and important data on bacterial infection of eggs. Rettger and Stoneburn[2] have found the B. pullorum in the ovaries of hens suffering from "white diarrhea," and they demonstrated this bacillus in fresh as well as in incubated eggs from a poultry farm where "white diarrhea" was prevalent. Controls from a healthy farm were negative.

Lamson[3] claims that most eggs contain bacteria although they may be so few in number that the egg is called fresh. He found that the bacteria that cause decomposition in eggs occurred in the upper part of the hen's oviduct. In fact diseased ovaries may be responsible for infected eggs. Rosenberger believes that new-laid eggs are practically sterile. His standard of a fresh egg is one which is odorless, and in which after vigorous shaking in the shell, there is no intermixture of yolk and white. Colon bacilli may enter a "dirty" egg, if it is cracked so that the inner membrane is broken. Infection may also occur in breaking a "dirty" egg or from unclean hands. An egg can be fresh though "dirty." A clean fresh egg will remain fresh, showing no infection with gas-producing bacilli for at least ten months in an ordinary refrigerator, whether specially packed or not. The all-important point is that the egg be fresh to start with, and this is best determined by candling. After being refrigerated for six months, admixture of yolk and white on vigorous shaking may occur because of the evaporation of water through the shell. But if no odor has developed the egg is good and will be found palatable raw. More work is needed on the subject of eggs as disease carriers, and more attention should be directed toward the production of clean, sterile eggs.

[1] Rosenberger, R. C.: Bacteria in Fresh Eggs, *N. Y. Med. Jour.*, May 11, 19..
[2] Rettger and Stoneburn: Bulletin No. 68, Storr's Agricultural Station, April, 1911.
[3] Lamson, G. H.: Report of Storr's Agricultural Experiment Station, 1907-8, 1908-9.

VISIT OF THE GERMAN PHYSICIANS.

On Monday of this week, Oct. 7, there came to Boston a party of about 250 visiting German physicians. These gentlemen, most of whom had been in attendance on the recent Fifteenth International Congress on Hygiene and Demography at Washington, D. C., are taking advantage of their occasion to make a somewhat extended tour of the larger cities, universities and hospitals in this country. On Monday, from 9 to 11 a.m., they inspected the Massachusetts General Hospital and witnessed special surgical and medical clinics arranged for their observation. From 11 to 1 they paid a similar visit to the Boston City Hospital, where, at 1 p.m., a lunch was served. Tuesday afternoon there was a reception at the Harvard Medical School. On the evening of Tuesday the guests left for Albany. Brief though their stay here has been, it is to be hoped that the cordiality of their welcome by the Boston profession has more than compensated for the inconveniences of their rapid travel. Such interchange of hospitality cannot but be of mutual benefit and enlightenment not only to those who personally participate but to all who share in the common purpose and aspirations of medicine in Germany and in America.

TWO OPINIONS OF CANCER.

Report from Berlin on Sept. 27 states that recently, before the Congress of German Naturalists and Physicians at Munster, in Westphalia, Dr. Czerny, of Heidelberg, expressed himself rather pessimistically on the prospect of any cure for cancer, other than that offered by early, radical surgery. He believes that the disease is increasing in frequency of incidence, and that the possibility of cure by intravenous injection of selective drug-combinations is slight.

On the other hand Dr. Bashford, in his recent Middleton Goldsmith Lectures before the Pathological Society of New York, emphatically declared that he does not believe cancer to be on the actual increase, and spoke hopefully of the prospect of non-surgical methods of treatment. Dr. Czerny is one of the leading surgeons of Germany, Dr. Bashford an expert and director of the British Imperial Cancer Research Fund. The opinion of each is entitled to high respect.

Dr. Bashford on Oct. 21 is to deliver the Von Leyden memorial lecture in Berlin.

TREATMENT OF DELIRIUM TREMENS.

AT the recent fourteenth annual meeting, in Detroit, Mich., of the American Hospital Association, Dr. Bruce Smith, superintendent of hospitals for Ontario, Canada, called attention to the great efficiency of continuous hot baths in the treatment of delirium tremens. It is well known that this measure has been found of the greatest value in the control of acute maniacal conditions, and is extensively used for this purpose at hospitals for the insane. The patient is immersed to the neck in a tub of hot water, which exercises its usual depletive and sedative effect on the central nervous system, calms psychomotor excitability, and incidentally promotes excretion. This treatment can be protracted over a number of hours, if necessary, and can be frequently repeated. In delirium tremens its indication seems particularly happy, except in laparotomy cases, where immersion would be inadvisable. This method deserves more extended adoption in general hospitals instead of the radical use of depressant drugs commonly employed.

EDITORIAL NOTES.

FRENCH CONGRESS OF SURGERY.—The twenty-fifth annual French Congress of Surgery is being held in Paris during the current week, Oct. 7 to 12, under the presidency of Dr. E. Delorme. The special topics of its discussion are the diagnosis and treatment of cicatricial strictures of the esophagus, the clinical indications supplied by radiology in surgical affections of the stomach and intestines, and the relations of coxa vara to fractures and separations of the epiphyses of the upper extremity of the femur.

BUBONIC PLAGUE IN AUSTRALIA.—Report from New Castle, N. S. W., on Oct. 2, states that three cases and one death of bubonic plague have recently occurred aboard the ship *Bella Isle*, from Hamburg, now lying at wharf in New Castle harbor.

BUBONIC PLAGUE IN THE AZORES.—Report from Lisbon, Portugal, on Oct. 2, states that "a serious outbreak of bubonic plague has occurred at Angra, on the south side of the island of Teiceira, capital of the Azores. The number of cases is not given.

LONDON DEATH-RATE IN AUGUST.—Statistics recently published show that the total death-rate of London for August, 1912, was 12.1 per thousand inhabitants living. Among the several districts and boroughs, the highest rate was 19.0 in Shoreditch, one of the east end slums, and the lowest was 8.0 in Lewisham, a southern suburb.

A LIVING BRITISH CENTENARIAN.—Mr. Isaac Oldaker, of Brighton, England, who is said to have been born on Sept. 21, 1812, at Rocester, near Uttoxeter, Staffordshire, celebrated recently his supposed centennial anniversary. Bred a carpenter, he early joined the army, and later became a railway employee. He is said to be the oldest military veteran in the British Empire. His health is still excellent.

BERI-BERI ABOARD A BRITISH BARK.—The British bark *"Daylight,"* from Bombay, arrived on Oct. 6 at Baltimore with six cases of beri-beri aboard, three more of the crew having died of the disease on the voyage.

HERTER LECTURES BY DR. NUTTALL AT BALTIMORE.—The lectures at the Johns Hopkins University this year on the Herter Foundation were delivered by George H. F. Nuttall, formerly associate in hygiene, Johns Hopkins University, fellow of Magdalen College and Quick professor of biology in the University of Cambridge. Professor Nuttall spoke on Oct. 8, 9 and 10, his subjects being "Spirochetosis," "Trypanosomiasis," and "Piroplasmosis," respectively. The lectures were illustrated by lantern slides and specimens. The Herter lectureship was founded in 1902 by Dr. and Mrs. Christian Herter of New York, who gave the university $25,000 for the "formation of a memorial lectureship."

LECTURE BY DR. CABOT.—Dr. Richard C. Cabot, of Boston, recently delivered a lecture at the University of California on "Social Hygiene."

"He urged the establishment of an efficient national public health department at Washington, physical examination and adequate medical care by school physicians and nurses for every child in the public schools, more attention to industrial hygiene and occupational diseases, and development by which the public hospitals shall more and more care for the general public health."

LECTURES ON PREVENTIVE MEDICINE.—It is announced that a series of lectures, open to the

general public, will be given e Friday this winter at 2 p.m., at the Unive y of Californ nia, San Francisco.

"Federal, state and municipal control of disease, vital statistics, pure food, pure milk and pure water, sewage disposal, sanitary engineering, disinfection, social economics and social service in relation to public health will be some of the subjects dealt with."

Professional Distribution of College Graduates.—An item in the issue of *Science* for Oct. 4 points out that from 37 representative American colleges only 6.5% of the graduates take up the study of medicine. At the University of Pennsylvania, however, a much larger percentage of graduates take up medicine. These figures are derived from a recently issued bulletin of the United States Bureau of Education, by Bailey B. Burritt, on the "Professional Distribution of University and College Graduates."

Opening of Rice Institute.—On Thursday, Friday and Saturday of this week, Oct. 10, 11 and 12, is to be celebrated the formal opening of the Rice Institute of Liberal and Technical Learning, at Houston, Tex. There will be appropriate ceremonies of dedication and to inaugurate the educational program there will be a series of lectures by distinguished and foreign scientists.

Extermination of Flies in Bohemia.—The United States consul at Prague, Bohemia, reports to Washington, D. C., on Oct. 5, that the common fly has been practically exterminated from Bohemia.

"Screen doors to keep out flies and other insects are unknown. The buildings are all constructed of brick, stone or concrete. The docks along the river front are of granite. The pavements and sidewalks are made of granite blocks. There are no wooden sidewalks, stairways or buildings in the city. Decayed vegetable or animal matter is not openly exposed to flies and the streets are frequently cleaned during each day. There are no open drains in the city to attract and breed flies. I can only ascribe the absence of flies to the lack of breeding places."

Since the loss of its sea-coast, Bohemia has hardly been deprived of "anything that it could more willingly part withal" than its flies.

A Grateful Literary Patient.—Gratitude to physicians, even for gratuitous service, is not always long-lived nor does it often take enduring form. A recent issue of the London *Chronicle* calls attention to the case of Thackeray, who in 1849, dedicated "Pendennis" in the following terms to his physician, Dr. John Eliotson, who in 1848 had attended Thackeray in a serious illness without charge:

"Thirteen months ago, when it seemed likely that this story had come to a close, a kind friend brought you to my bedside, whence, in all probability, I never should have risen but for your constant watchfulness and skill. I like to recall your great goodness and kindness (as well as many acts of others, showing quite a surprising friendship and sympathy) at that time, when kindness and friendship were most needed and welcome. And as you would take no other fee but thanks, let me record them here on behalf of me and mine."

NEW ENGLAND.

Some Large Milk Fines.—In the superior criminal court at Boston last week, five large local milk firms were fined sums aggregating $490 for various violation of the laws regulating the sale of milk.

Hospital Concerts for October.—The concerts of the Boston Hospital Music Fund for October have been announced to be held as follows: On Oct. 6, at the Home for Aged Women, Boston; on Oct. 13, at the Home for Aged Couples, Roxbury; on Oct. 27, at the Woman's Charity Club Hospital, Roxbury; and on Oct. 29, at the Cushing Hospital, Roxbury.

A Nautical Centenarian.—James Frost, who died on Sept. 29 at Milford, N. H., was locally reputed to have been born in 1810 at Lubec, Me. In his youth he became a sailor, and followed the sea for eighty years. His health was always remarkably good. He is survived by two aged children and several grandchildren and great-grand-children.

NEW YORK.

Babies' Welfare Association.—The Babies' Welfare Association reports that up to Saturday, Sept. 28, there had been 11,167 deaths from all causes of infants one year old and under in New York City since Jan. 1. This, notwithstanding the very considerable increase in population, is a decrease in mortality of 570. On Oct. 1 there were some 17,000 babies enrolled

at the various milk stations, approximately 4,500 more than at the beginning of June; and during the four months over 30,000 have been in attendance at the stations. The autumn and winter campaign has now begun, and letters have been sent to the different organizations maintaining milk stations, urging them to make every effort to keep up the enrollment during the cold season.

FIRE PREVENTION DAY.—Oct. 9 was observed in the State of New York as Fire Prevention Day, in accordance with a proclamation designating this which was issued by Governor Dix on Sept. 25. In it the Governor requested that the people generally should devote themselves, on that day, to a study of the national fire waste, with a view to its reduction. He urged that they should observe the day by clearing up dangerous rubbish and preparing heating apparatus for winter use, that schools and other institutions should make it the occasion for fire drills and lectures on fire prevention, and that owners of buildings should devote it to inspecting their property and adding such appliances as might be necessary for the safety of the occupants. That Governor Dix is justified in his fears and in his desire for the remedying of canditions is shown by the statistics quoted in his procalmation. Thus, among other facts, it is pointed out that the fire losses and cost of fire prevention in the United States amount annually to $480,000,000, or more than the total American production of gold, silver, copper and petroleum each year. The equivalent of a $5,000 home is destroyed every ten minutes.

THE COLLEGE OF MEDICINE OF SYRACUSE UNIVERSITY.—The 41st session of the College of Medicine of Syracuse University began Tuesday, Oct. 1. Thirty-one-students registered in the entering class and three entered with advanced standing. At the opening exercises Chancellor James R. Day spoke to the students and concluded his remarks by saying that the contract for the new dispensary, which for efficiency will be the equal of any in the land, was about to be let. Professor Henry L. Elsner gave the opening address, "Traditions and Ideals." Dean Heffron announced the changes that would be made in courses and in instructors.

LECTURES BY DR. RUBNER.—On Thursday evening of last week, Oct. 3, Dr. Max Rubner, of the University of Berlin, Germany, delivered before the New York Academy of Medicine the Wesley M. Carpenter lecture on the subject, "Concerning the Life of a Cell."

On Saturday evening of last week, Oct. 5, Dr. Rubner delivered the first lecture in the current eighth series before the Harvey Society, on "Modern Steam Sterilization." The second Harvey lecture will be given on Saturday of this week, Oct. 12, by Professor G. H. F. Nuttall, of Cambridge University, England, on "The Relapsing Fevers."

Current Literature.

MEDICAL RECORD.

SEPTEMBER 28, 1912.

1. KNAPP, S. A. *The Unjustified Prejudice of Tuberculous Patients Against Sanatoria and Hospitals.*
2. *BISHOP, L. F. *The Relation of Diet to Heart and Blood-vessel Disease.*
3. CHRISTIE, A. C. *Vaccines in Suppurative Otitis Media.*
4. DEWOLF, H. *Gallstones.*
5. SEXTON, L. *Observations on Vesical Calculi.*
6. FARNSWORTH, C. P. *Intestinal Obstruction with Report of Cases.*

2. Bishop believes that the relation between intestinal food activities and the heart muscle is a very real one. The integrity of the heart muscle is more often impaired by the effects of over-ingestion of food or ingestion of the wrong kind of food than for any other reason. The deaths which sometimes occur after big public dinners are due, he says, not to exhaustion from acute indigestion but to acute intoxication from rapid disintegration of an excess of protein food. The relation is more direct than is generally supposed. The writer says he has seen many cases of acute poisoning of the heart muscle by products of intestinal putrefaction. In persons with impaired circulation it is necessary to regulate proteins and calories so that the patient gets what is required but no excess. The ideal diet for cases of cardio-vascular disease is bread and butter, milk to supply fluid and enough cheese to make up protein requirements without excess of carbohydrates or heat units

[L. D. C.]

NEW YORK MEDICAL JOURNAL.

SEPTEMBER 28, 1912.

1. KNAPP, S. A. *Dental Hygiene for the Pupils of Public Schools.*
2. SUTTER, C. C. *The Putrefactive Products of the Intestinal Tract as an Etiological Factor in Chronic Disturbances.*
3. BIERHOFF, F. *Further Notes on the Sanitary Control of Prostitution in Some European Cities.*
4. WILLIAMS, T. A. *The Care of the Mentally Disturbed, Not Permanently Insane.*
5. WOLDERT, A. *The Microscopic Findings in Twenty-four Cases of Malarial Hemoglobinuria.*
6. PONTIUS, P. J. *Treatment of Acute Staphyloma of the Cornea.*
7. STEINHARDT, I. D. *Ten Sex Talks to Girls.*
8. HAWES, A. T. *Vaginal Caesarean Section Post Mortem.*
9. NEUWELT, L. *Two Forms of Acute Intestinal Obstruction within Five Months in an Infant One Year Old.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

SEPTEMBER 28, 1912.

1. NEWELL, F. S. *Cardiac Complications of Pregnancy and Labor.*
2. WEINSTEIN, J. W. *A New Method of Treatment of Ulcer of the Stomach.*
3. JONES, A. A. *Hunger Pain.*
4. PUCKNER, W. A. *The Unreliability of Unimportant Medicaments.*
5. HYNSON, H. P. *Desirability of a More Restricted Materia Medica from the Standpoint of the Pharmacist.*
6. LEFEVRE, E. *The Desirability of a More Restricted Materia Medica from the Point of View of Medical Instruction.*
7. OSBORNE, O. T. *The Drugs We Need.*
8. WILBERT, M. I. *The Work of the Committee on Useful Remedies.*
9. STENGEL A., AND PANCOAST, H. K. *The Treatment of Leukemia and Pseudoleukemia with X-rays.*
10. BOGGS, R. H. *Roentgen Treatment of Non-Malignant Lesions.*
11. LLOYD, J. H., AND LUDLUM, S. D. *Essential, or Primary, Lateral Sclerosis.*
12. SOLIS-COHEN, M. *Reporting of Suspicious Cases by the Laity a Prerequisite to the Efficient Control of Communicable Diseases.*
13. SKOOG, A. L. *Pathologic Study of a Case of Acute Poliomyelitis.*
14. DORSETT, W. B. *A Simple Operation for Repair of the Female Perineum, Based on the Anatomy of the Parts.*
15. TOMLINSON, W. H. *Negative Air-pressure in Accessory Sinus Disease. Simple Apparatus Used in Frontal Sinus Empyema, With Report of a Case.*
16. HUNT, E. L. *Complications in Tabes Dorsalis.*
17. REICHMANN, M. *Congenital Abscence of Both Clavicles.*
18. BROWN, E. J. *A New Sphygmomanometer.*
19. PENNINGTON, J. R. *A Suggestion for Removing Sutures.*
20. SUTTON, L. *A Clinical Note on Hyperhidrosis Circumscripta.*

1. Newell's very practical and interesting article is summarized as follows: "Any organic heart lesion, even if perfectly compensated under normal conditions, should arouse apprehension and call for constant watchfulness if pregnancy supervenes. In case pregnancy comes as a complication when the heart is imperfectly compensated, the uterus should be immediately emptied, since a heart that has failed under the ordinary burdens of life has no chance of sustaining the added burden of pregnancy. When a heart which has been previously well compensated fails during pregnancy, an attempt must be made to restore compensation by rest and appropriate treatment, but unless the attempt is promptly successful the pregnancy should be ended. If compensation has failed during one pregnancy future pregnancies should be absolutely forbidden. Labor should be shortened as much as possible in every patient who has a demonstrable heart lesion. [E. H. R.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

SEPTEMBER, 1912.

1. *LIBMAN, E. *A Study of the Endocardial Lesions of Subacute Bacterial Endocarditis, with Particular Reference to Healing or Healed Lesions; with Clinical Notes.*
2. *BAEHR, G. *Glomerular Lesions of Subacute Bacterial Endocarditis.*
3. *LAWRENCE, C. H. *The Relation of Hypertension to Urinary Excretion.*
4. *SPITZKA, E. A., AND RADSCH, H. E. *The Brain Lesions Produced by Electricity as Observed after Legal Electrocution.*
5. *BRANNAN, J. W. *Hospitals and Typhoid Carriers.*
6. *CALLISON, J. G. *The Therapeutic Use of Vaccines in Typhoid Fever.*
7. *ANDERS, J. M. *Stenosis of the Duodenum; a Statistical Study, with the Report of a New Case.*
8. SCHWARTZ, H. J. *The Complement-fixation Test in the Differential Diagnosis of Acute and Chronic Gonococcic Arthritis.*
9. WURDEMANN, H. V. *A Critical Commentary on the Free Eye Infirmary, with Suggestions as to Reforms.*
10. HUNT, E. L. *The Treatment of Locomotor Ataxia.*
11. *HASTINGS, T. W. *Tuberculin Therapy in Surgical Tuberculosis.*

1. Libman's article is of value both as a careful description of anatomical findings in a series of 78 cases of subacute bacterial endocarditis and for certain new observations. Most important of the latter is the fact that while the disease, known also as Chronic Infectious Endocarditis has been described by most authors as invariably fatal, Libman has seen 11 cases in which there is every reason to believe that the disease was present but ended in complete cessation of the infectious process.

2. Baehr describes striking lesions of the kidney found in 23 out of 25 cases of endocarditis due to the endocarditis coccus of Libman and Celler, and in no case of acute endocarditis due to the ordinary pathogenic bacteria out of 54 that were studied. There is some evidence that these lesions are due to bacterial emboli.

3. Lawrence discusses the relation of blood pressure to urinary excretion and reports observations to show that the belief commonly held that in atrophic kidneys the excretion of urine is in proportion to the increase in blood-pressure is in error. He concludes that no definite relation can be established between systolic or diastolic pressure alone and output of urine, but that there appears to be a definite relation between changes in pulse pressure and urinary output since whenever the former increased in the presence of a falling systolic pressure there occurred a diuresis. The administration of a nitrite caused a diuresis even though pulse pressure was diminished by diminution in the systolic pressure, presumably from an increase in the volume output of the heart. Whenever the systolic and the diastolic pressures approached their normal mutual relation of 3 to 2 there was a rise in urinary excretion.

5. Brannan in connection with a brief report of investigation as to typhoid bacilli in the excretions of patients urges increased attention to the prevention of spreading the disease by these, not only by treatment of the patient to prevent the growth of bacteria, but also by public health regulations to enforce precautions after discharge.

6. Callison from a small number of personal cases and from 475 cases collected from literature concludes that vaccine treatment in typhoid fever is of value, the mortality in the series being 5.4 per cent. He finds that complications were less frequent in the vaccine-treated cases and that the attacks seemed shortened in some instances.

7. Anders has collected 262 cases of acquired stenosis of the duodenum from different causes of which duodenal ulcer figured in 53 per cent., cancer of the duodenum or the head of the pancreas in 15 per cent., compression by the root of the mensentery in 11 per cent. and sphincteric action of the muscular layer of the duodenum in 5 per cent. Adhesions and gall-stones were next in frequence, and twelve other rare conditions accounted for the remainder.

11. Hastings' article which was begun in the previous number in this part deals chiefly with case reports illustrative of different forms of surgical tuberculosis. Attention is called to the fact that surgical tuberculosis is less subject than pulmonary tuberculosis to secondary infections. It may be for this reason that the former is more amenable to specific therapy.

[F. W. P.]

THE LANCET.

AUGUST 24, 1912.

1. MORRIS, H. *Observations on the History of Syphilis, on the Wassermann Reaction and Parasyphilis, and on Treatment.*
2. *BROUGHTON-ALCOCK, W. *Vaccination for Typhoid Fever by Living Desensitized Bacilli Typhosi*
3. FRASER, J., AND MCGOWAN, J. P. *Preliminary Note on a Method of Vaccinal Treatment of Surgical Tuberculosis.*
4. CLARKE, C. *Nerve-ending Anesthesia.*
5. WILLIAMS, E. M. N. *The Nature of Colon Bacilluria.*
6. SAULL, A. F., HORSLEY, V., AND MOULTEN, C. W. M. *Preliminary Report on the Forcible Feeding of Suffrage Prisoners.*

1. This article deals with syphilis from an historical point of view. Toward the latter part, Morris considers the bearing of "606" and Wassermann's reaction on tabes and general paralysis.

2. Broughton-Alcock describes vaccination for typhoid fever by living desensitized typhoid bacilli. It is difficult to see the advantage of this method over that now in use.

[J. B. H.]

AUGUST 31, 1912.

EDUCATIONAL NUMBER.

This number of the Lancet is devoted to a series of addresses of advice, explanation and welcome to medical students.

[J. B. H.]

SEPTEMBER 7, 1912.

1. SCHÄFER, E. A. *Presidential Address on the Nature, Origin and Maintenance of Life.*
2. GREENFIELD, J. G. *On the Value of a Quantitative Albumin Estimation of the Cerebro-spinal Fluid with Special Reference to the Syndrome of Massive Coagulation and Xantho-Chromia.*
3. *MORLAND, E. G. *The Quantitative Cutaneous Tuberculin Test. (Quanti-Pirquet [q P] for Short.)*
4. ROTH, D. B. *The Treatment of Flat Foot.*
5. WEBER, F. P. *Coarctation of the Aorta in an Adult, in the Death Due to the Rupture of an Aneurysm of the Neck.*
6. MCKEAND, W. J., AND REID, D. MCK. *A Case of Large Caseous Tubercle of the Myocardium.*
7. COLWELL, W. *Note of a Case of Very Exuberant Growth of Molluscum Contagiosum.*

3. Morland describes a quantitative cutaneous tuberculin test which gives the degree of tuberculous sensitiveness at the moment of examination and is a datum of great importance for diagnosis and as a guide to treatment. The technic is simple and with the brief given in the article as to mathematical formulae and the calculation of results, this test should prove of distinct value to specialists on this subject.

[J. B. H.]

BRITISH MEDICAL JOURNAL.

AUGUST 24, 1912.

1. *ROGERS, L. *Further Experience of the Specific Curative Action in Amoebic Disease of Hypodermic Injections of Soluble Salts of Emetine.*
2. RANKEN, H. S. *Granule-shedding in Trypanosoma Gambiense.*
3. *BURTON-FANNING, F. V., AND FANNING, V. J. *The Results of Sanatorium Treatment.*
4. *MACALISTER, G. H. K. *A Note Upon the Use of Antiformin in Sputum Examination, and on Staining Methods for the Demonstration of Tubercle Bacilli.*
5. TILSON, H. *The Pikrin Method of Staining Tubercle Bacilli.*

BRITISH MEDICAL ASSOCIATION.

COMBINED SECTIONS OF LARYNGOLOGY, AND RHINOLOGY AND OTOLOGY.

6. MYGREND, H. et al. *Discussion on the Education of the Specialist in Laryngology and Otology.*

SECTION OF OTOLOGY.

7. JONES, H. P. *Introductory Remarks by the President.*
8. WOODS, R. H. et al. *Discussion on Acute Suppurative Otitis Media, its Neglect and Proper Treatment.*
9. MILLIGAN, W. *On the Value of Decompressive Operations in Intracranial Complications of Otitic Origin: With Special Reference to the Treatment of Otitic Meningitis.*
10. LOVE, J. V. et al. *Discussion on the Prevention of Deafness in Non-suppurative Cases.*
11. JENKINS, G. J. *The Indication for the Schwartze Operation.*

SECTION OF NAVY, ARMY AND AMBULANCE.

12. HARRISSON, D. *Introductory Remarks.*
13. WALKER, N. D. *Factors Affecting the Marching Power of Troops.*
14. WILDY, A. G. *A Suggestion for the More General Use of Iodine in First-aid Treatment of Accidental Wounds.*
15. WHITELEGGE, W. G. *Eyestrain in the Royal Navy: With Reference to Gunnery and other Ratings.*
16. RAW, N. *The Treatment of Syphilis by Salvarsan.*

1. Rogers presents further cases to show the results of treatment of amebic dysentery by salts of emetine. He believes this to be a specific on amebic hepatitis and dysentery.

3. Burton-Fanning and Fanning in a short paper present the results of sanatorium treatment in 1102 patients with pulmonary tuberculosis. The results are encouraging and their summary of value.

4. This paper is of value to those interested in the fever points of diagnosis in tuberculous and allied conditions.

[J. B. H.]

AUGUST 31, 1912.

1. MAY, O. *The Functional and Histological Effects of Intracneural and Intraganglionic Injections of Alcohol.*
2. CHEATLE, G. L. *Grey Hair Associated with Nerve Lesions.*
3. GARSON, J. G. *The Treatment of Tabetic Ataxia.*
4. YORK, W., AND BLACKLOCK, B. *A Note on the Morphology of a Strain of Trypanosoma Equiperdum.*

BRITISH MEDICAL ASSOCIATION.

Section of Electro-Therapeutics and Radiology.

5. HARNISCH, G. F. *On the X-ray Treatment of Uterine Fibroids.*
6. *STOVY, F. A. *On the Results of Treating Exophthalmic Goitre with X-rays.*
7. RAYNER, A. E. *The Treatment of Hypertrichosis with X-rays.*
8. MORTON, R. *The X-ray Diagnosis in Some Forms of Arthritis.*
9. SCOTT, A. *Cervical Ribs.*
10. *JORDAN, A. C. *Peribronchial Phthisis.*
11. JONES, H. L. et al. *Discussion on Ionic Medication.*
12. SLOAN, S. *The Physics of Ionic Medication.*

13. SNOW, W. B., *Non-operative Treatment of Prostatitis.*
14. HUMPHRIES, F. H. *Electricity in the Treatment of Obesity.*
15. HAMPSON, W. *The Control of the Heart Beat by Means of Contractions of Muscles Electrically Stimulated.*
16. BAILEY, C. F. *Stereoscopic Radiography as a Routine Method of Examination.*

6. Stovy has treated exophthalmic goitre with x-rays for over four years and is convinced that this is the treatment of the future. In many cases the goitre itself disappears while pulse is reduced and cardiac and other symptoms are relieved. The writer reports on 48 cases. Of 41 cases out of the total number who took entire course of treatment 14 are completely cured, 22 much improved, 4 still under treatment and only 1 has not done well. This article is of distinct interest; further work should be done on this subject.

10. Jorc'an continues his work on peribronchial phthisis which goes to confirm his original belief that phthisis is not a disease of the apices of the lungs but of the roots of the lungs. He presents excellent plates. The article is of great interest and well worth reading. (There is no doubt but that lung root tuberculosis and peribronchial phthisis is a much neglected subject and usually escapes detection.)

[J. B. H.]

SEPTEMBER 7, 1912.

EDUCATIONAL NUMBER.

This number of the British Medical Journal is devoted to a series of addresses of advice, explanation and welcome to medical students.

[J. B. H.]

INDIAN MEDICAL GAZETTE.

SEPTEMBER, 1912.

1. FIRTH, R. H. *Recent Facts as to Inoculation and the Prevalence of Enteric and Paratyphoid Fevers in the European Army of India.*
2. SMITH, H. *Details of Vision of 132 Cases of Intracapsular Extraction of Cataract.*
3. BISHOP, T. H. *A Cholera Season: Some Observations, Methods, and Results.*
4. DAVIDSON, J. *The Treatment of Uterine Prolapse.*
5. NEWELL, A. G. *Treatment of Smallpox by Tincture of Iodine.*
6. STOTT, H. *An Outbreak of Urticaria Due to Mucuna Pruriens.*
7. BROOKES, W. C. *Opium Cures, "Cimbretum Sundaicum" and "Antipav."*
8. MILNE, C. *Some Interesting Cases.*
9. HILL, O. A. R. B. *A Case for Diagnosis.*
10. BARBER, C. H. *The Vaccine Treatment of Pneumonia.*
11. FENTON, A. *Rupture of the Spleen. Operation: Recovery.*

THE PRACTITIONER.

AUGUST, 1912.

1. *BARKER, A. G. *Bone Grafting.*
2. *PITT, G. N. *Adherent Pericardium.*
3. *TAYLOR, S. *Two Clinical Lectures on the More Serious Forms of Cardiac Valvular Disease.*
4. *POYNTON, F. J. *Some General Observations Upon Heart Disease.*
5. *BARBER, H. *Sudden Strains in Injuries of the Heart.*
6. *THORNE, R. T. *The Treatment of Cardiac Cases by Nauheim Baths in Their Own Homes.*
7. SCOTT, T. B. *On Some Clinical Aspects of Abnormal Arterial Tension.*
8. HEWLETT, R. T. *Review of Typical Diseases.*
9. KER, C. B. *A Review of Recent Literature on Typhoid Fever.*
10. WOLLER, H. E. *The Relationship of the Thyroid Gland to Other Internal Secretion of Sexual Origin.*
11. *WOLFENDALE, G. A. *The Importance of Early Diagnosis and Treatment of Pulmonary Tuberculosis.*

1. Barker reviews the most important work recently done on the subject of bone grafting, reports numerous cases both of his own and others and comments on the technic employed. There are two excellent plates.

2. Pitt discusses adherent pericardium and the results of this condition. Out of 400 cases of acute pericarditis at a general hospital 50-60 per cent. die, and 30-40 per cent. leave the hospital with an adherent pericardium. In only about one-sixth of the cases, however, are the adhesions universal. He describes the pathological changes taking place in the transition from acute pericarditis to chronic adherent pericardium, the nature and situation of the adhesions and their relation to dilatation of the heart. The effect on increasing the work of the heart is much greater than that caused by any valvular disorder. He describes the chain of events ensuing as a result of this condition, the symptoms which develop and their cause; the frequency of the condition in childhood and adult life, one-half of the cases occurring under the age of 21. There are a few other causes of this condition besides rheumatism, notably tuberculosis and malignant disease. The various forms of cardiac disease which adherent pericardium may cause he describes in detail, giving several illustrative cases. Treatment should be (1) prophylactic, especially in children in keeping the nose and air passages clear and clean; (2) rest in bed; (3) cardiolysis. The paper is an excellent practical review of the subject.

3. Taylor in two clinical lectures takes up the subjects of aortic regurgitation and mitral stenosis. Although nothing new is presented the subjects are considered in a careful and thorough manner well worth study.

4. In a somewhat diffuse paper, Poynton discusses experimental endo, myo, and pericarditis, its relation to infection, the use of the sphygmomanometer, the polyograph and electro-cardiogram and other finer points of cardiac study and diagnosis.

5. Barber in an interesting paper reports several cases of sudden cardiac injury and strain among athletes and others and comments on the symptomatology and diagnosis of such conditions.

6. Thorne in an article illustrated with many sphygmographic tracings describes the Nauheim method of treating cardiac affections by baths and exercises and the possibility of carrying on such treatment at home.

11. Wolfendale discusses the early diagnosis of pulmonary tuberculosis. The signs and symptoms which he mentions as being of the greatest importance in early diagnosis would hardly be considered as such by the best authorities, but rather as signs of fairly well marked disease. Under treatment he urges the use of antiseptic intubations. The fact that he recommends this method so strongly would not strongly prejudice the reader in favor of the soundness of his views.

[J. B. H.]

SEPTEMBER, 1912.

1. HERMAN, S. E. *The Use of Pessaries.*
2. SMITH, G. B. *The Treatment of Eclampsia.*
3. *MURRAY, H. L. *Puerperal Fever.. Some Pathological and Immunological Data Bearing on Prophylaxis and Treatment.*
4. PRIESTLEY, J. *Review of Literature on Public Health.*

5. BUNCH, J. L. *Pruritus and Other Itching Diseases of the Skin.*
6. *GALBRAITH, T. *The Vaccine Treatment of Acne and Allied Conditions.*
7. *SAVILL, A. F. *Further Notes on the Vaccine Treatment of Seborrhœa.*
8. SWELL, L. *On Enucleation of the Tonsil.*
9. LUKE, T. D. *Fungi: Thermal Mud and Peat Baths.. Their Curative Properties.*
10. HEITH, S. *The Blood in Cancer.*
11. DICK, J. S. *The Practical Value of Opsonic Estimations.*
12. BROCK, A. J. *Disease as the Nemesis of Reproductive Inefficiency.*

3. Murray discusses puerperal fever and its causation and treatment. He goes over the various organisms chiefly found in such cases, and the paths of infection, direct and indirect, the symptoms which may result and treatment by means of serums, vaccines and operative interference.

6, 7. Galbraith and Savill in two short papers discuss the vaccine treatment of acne, alopecia, rosacea, sycosis, seborrhoea, etc., with illustrative cases and details as to preparation of vaccines, dosage, etc.

[J. B. H.]

EDINBURGH MEDICAL JOURNAL.

SEPTEMBER, 1912.

1. *FOWLER, W. H., AND RITCHIE, W. T. *Orthodiography of the Heart and Aorta.*
2. *DICKIE, J. K. M. *Enucleation of the Faucial Tonsil with the Guillotine.*
3. TURNER, D. *Mesothorium, Thorium X, and Thorium Emanation and Their Therapeutic Use.*
4. STRUTHERS, J. W. *Two Cases of Separate Acromion Process, with a Note on the Appearances Presented in Radiographs of the Acromion Process and Upper End of the Humerus During Ossification.*
5. *KOCH, A., AND PERUM, H. P. T. *Intussusception in Children. 400 Danish Cases.*
6. PRINGLE, A. S. *The Insurance Act.*

1. In a long and careful paper with many excellent plates Fowler and Ritchie discuss the complex subject of orthodiography of the heart and aorta, taking up first technic; the appearance of the normal heart and its pulsations and measurements; then they consider the form of the heart in pathological conditions such as aortic disease, mitral disease, aneurysm and others.

2. In this paper, Dickie gives details of technic in operation of enucleation of the faucial tonsil with the guillotine, discussing the anatomy and pathology of the tonsil and the results in 50 cases.

5. Koch and Perum present here a study of the etiology and symptomatology of 400 Danish cases of intussusception in children. Among predisposing factors they mention (1) ascarides, (2) polypi and Meckel's diverticulum, (3) laxatives, (4) nutrition, (5) indigestion. They then discuss the symptoms and treatment especially that by operation; they consider the advantages and disadvantages of the "bloodless" method by enemata an the cases in which this is advisable. Its dangers are (1) incomplete disinvagination, (2) perforation, (3) tendency to relapse. Their tables of results, though excellently presented in the article, are not such that they adapt themselves to review but should receive careful study by all those interested in this subject.

[J. B. H.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT. No. 32.

AUGUST 8, 1912.

1. v. BECHTEREW, W. *What is Psychoreflexology?*
2. CASTELLI, G. *On Neosalvarsan.*
3. BRAUN, H. *Chondrectomy for Freund's Emphysema.*
4. BRÜCKNER, G. *Transmission of Typhoid.*
5. KÖRBER, N. *Clinical Significance of Muck's Granula.*
6. BORNSTEIN, A., AND STROINK. *Oxygen Poisoning.*
7. KLEIN, T. *Addison's Disease.*
8. BIBERGEIL, E., AND BLANK, D. *Ulnar Paralysis and Cervical Ribs.*
9. NIESZYTKA, L. *Prophylaxis of Puerperal Fever.*
10. HERSCHEL. *Electric Vibration Massage.*

No. 33. AUGUST 15, 1912.

1. *HOCHHAUS. *The Treatment of Arteriosclerosis.*
2. HOFFMAN, A. *Clinical Significance of the Typical Electrocardiogram.*
3. ROFBAUER, L. *Pathogenesis of Pulmonary Emphysema.*
4. BAUSTRÖM, P. *Tubercle Bacilli in the Circulating Blood.*
5. PETERSON, O. V. C. E. *The Value of Saxl's Sulphur Reaction in Carcinoma of the Digestive Tract.*
6. POLLITZER, H. *Urinary Mucous Concretions and Calcareous Albuminuria.*
7. YAOITA, S. *A New Method for Detecting Scarce Parasitic Ova in the Feces.*
8. JOACHIMSTHAL. *Present Status of the Treatment of Congenital Dislocations of the Hip.*
9. BRÜNNING, A. *Statistics of 367 Choledochotomies.*
10. WAGNER, A. *Positional Prophylaxis after Operation.*
11. MEYER, O. *Alimentary Toxemia Simulating Localized Cerebral Disease.*
12. CZABLEWSKI, F. *Aseptic Catheterisation.*
13. STEINER, M. *Gastro-Intestinal Disturbances in Sucklings Simulating Tangier Fever.*
14. CARYOPHYLLIS, G., AND SOTIRIADES, D. *Treatment of Kala-Azar with Salvarsan.*

1. The author offers no new suggestions as to the treatment of arteriosclerosis, but gives clearly the conclusions he has reached as to the relative merit of the many therapeutic measures now in use.

[C. H. L., JR.]

WIENER KLINISCHE WOCHENSCHRIFT. No. 38.

SEPTEMBER 19, 1912.

1. EXNER, A., AND SCHWARZMANN, E. *Tabic Crises, Gastric Ulcer, and the Vagus.*
2. HEYROOSKY, H. *Cardiospasm and Gastric Ulcer.*
3. ARZT, L., AND KERL, W. *The Modification of the Action of Atoxyl by Organ Extract.*
4. *KANNITZ, P. *Cases of Primary Tracheal Carcinoma.*
5. TEDESKO, F. *Peculiar Combination of Paroxysmal Hemoglobinuria with Renal Injury.*
6. GOLDFLAM, S. *Cases of Pupillary Phenomenon.*

4. Kannitz reports three cases of primary tracheal cancer, and collects from the literature 36 similiar cases. Of the total, 25 were men. Sixteen of the cases occurred in the sixth decade of life.

[R. M. G.]

Obituary.

JOSEPH HASBROUCK, M.D.

DR. JOSEPH HASBROUCK, a prominent physician of Dobbs Ferry, Westchester County, N. Y., died suddenly from cardiac disease on Oct. 2. He was born in Bergen County, N. J., on March 20, 1839, and was graduated from the medical department of the University of the City of New

York in 1869. He was attending physician to the Dobbs Ferry Hospital and a member of the local board of health. Dr. Hasbrouck's home in Dobbs Ferry was the historic mansion popularly known as "Livingston Manor." This house, however, was not the Livingston family seat, having been acquired by Van Brugh Livingston about 1823; though it is worthy of fame as Washington's headquarters and the scene of many interesting events during the Revolutionary War. In front of it a monument was erected in 1894, by the New York State Society of the Sons of the American Revolution, which bears the following inscription: "Here, July 6, 1781, the French allies, under Rochambeau, joined the American army. Here, August 14, 1781, Washington planned the Yorktown campaign, which brought to a triumphant end the War for American independence. Here, May 6, 1783, Washington and Sir Guy Carleton arranged for the evacuation of American soil by the British. And opposite this point, May 8, 1783, a British sloop-of-war fired seventeen guns in honor of the American Commander-in-Chief, the first salute by Great Britain to the United States of America."

Miscellany.

AN ANCIENT GREEK MEDICAL MANUSCRIPT FROM OXYRYNCHUS.

THE preservation of ancient medical documents is always a matter of great interest, and their recovery after centuries of oblivion affords particularly valuable light on the history of medicine, apart from their intrinsic archeologic and linguistic importance. In the issue of the *Lancet* for Sept. 28, (vol. CLXXXIII, p. 895), is the following editorial description of such a document discovered recently in Egypt.

"Among the many thousands of papyri recovered from mounds covering the ruins of the ancient city of Oxyrynchus, in the Egyptian Fayoum, one has recently been edited by Dr. Arthur S. Hunt, which gives a short selection of medical recipes. The manuscript dates from early in the first century, and upon one side of it is written a commentary upon the 'Iliad.' The recipes are of a miscellaneous character, similar to other fragmentary papyrus texts of the same description to be found in the Rylands collection of papyri at Manchester, and the Tebtunis papyri, to be preserved, we understand, in the University of California. The interest of the new manuscript arises from the ingredient employed for various maladies, which are as follows: 'The yellow salve for discharges, wounds, bruises, and weals: calamus, 4 dr.; white lead, 8 dr.; fine meal, 4 dr.; purified schist, 1 dr. [this ingredient is given by both Galen and Dioscorides, the latter recommending that obtained from Western Iberia]; saffron, 1 dr.; opium, 3 obols; gum, 4 dr.; water.' The next recipe is for 'small discharges and wounds': 'Fine meal, 8 dr.; antimony 2 dr.; opium, 3 ob.; flake of copper, 3 ob.; white lead, 2 dr.; gum, 2 dr.; water.' For leprosy the author advised 'cantharides, 1 dr.; ammi, rocket-seed; nigella [fennell], mustard and cress, and raw pitch. Apply locally.' The next sentence directs for use as a styptic 'pounded rock alum which will stop [the blood] at once.' 'To check nasal bleeding: mix frankincense with onion juice and apply juice inside. To produce sneezing: pound some white hellebore and blow it into the nostrils, or use soap wort, or castor, in the same way. For sores in the nose: rub yellow orpiment smooth, then lay the man on his back, and treat him; or use black hellebore in the same way. For polypus growing in the nostrils: baked soda, 3 ob.; cummin, 1 dr.; orris root, 1 dr.; rub them and blow into the nostrils. If the sore is rather dry smooth some dry fig bark and blow in. For quartan fever: juice of silphium, 1 ob.; myrrh, 1 ob. Another dose (*ψώμισμα*, a word used by Galen in reference to the feeding of infants): hemlock, 3 dr.; hebane, 3 dr.; opium, 2 dr.; castor, 1 dr.; black hellebore, 1 dr.; pound and work them up separately with water and make pastilles of the size of an Egyptian bean; then dry in the shade and give them to the patient to drink fasting, rubbing them in half a cotyle of raisin wine; having previously given him a bath two hours before taking; apply a warm bottle to the feet, and cover him up with blankets. Draught for liver patient: sweet flag 1 dr. [the Acorus calamus, and probably the *κάλαμος ἀρωματικός* of Dioscorides]; opopanax, 1 ob.; spikenard, 1 ob.; parsnip, 2 dr.; to be drunk slowly with raisin wine or honey. Another—tolerably strong: cinnamon ..... myrrh, 10 dr.; spikenard, 6 dr.; Æthiopian seseli, 6 dr. [Laserpitium siler]; rub smooth separately with egg and work up with juice of centaury [Erythræa centaurium], and give a dose of the size of an Egyptian bean in warm honey and water.' 'Draught for dropsy patients: mountain parsley ....., myrtle, 8 dr.; bitter almonds, 4 dr.; parsnip seeds, 6 dr..' Although these medical memorandda are preserved upon a papyrus in Egypt and probably were the notes of a local practitioner, it is quite possible that they are copied from the work of some Greek medical author who resided elsewhere' "

Many of the ingredients in these recipes sound familiar enough. The "dose," however, compounded of hemlock, henbane, opium, castor, and black hellebore sounds more like the prescription for an execution than like a medicinal potion. Greek pharmacy was apparently sometimes as heroic in its dosage as was medieval therapeusis with its purgings and blood-lettings. Perhaps a later age will look back on our surgery for malignant disease as being equally barbaric.

NOTICES.

NEW YORK POST-GRADUATE MEDICAL SCHOOL.—Prof. H. Strauss, of the University of Berlin, will give a lecture, in German, at the New York Post-Graduate Medical School and Hospital, Twentieth Street and Second Avenue, on "Gastric Secretion from the Therapeutic Point of View," on Monday, October 14th, at 4 p. m. and at the same hour on Tuesday, October 15th, a lecture on "The Method and Purpose of Dechlorination in Nephritis."

Prof. C. von Noorden, of the University of Vienna, will give a series of lectures, in English, at the New York Post-Graduate Medical School and Hospital, on "New Aspects of the Pathology and Treatment of Diabetes," and on "Diagnosis and Treatment of Nephritis," beginning on Tuesday, October 29th, at 4 p. m. and continuing for four consecutive days, at the same hour.

MASSACHUSETTS GENERAL HOSPITAL.—Members of the medical profession are invited to attend the Ether Day address by Dr. William J. Mayo, subject: "Contributions of the Nineteenth Century to a Living Pathology," on Oct. 16, 1912, at 4 p. m. Admission will be by ticket only. Application for tickets should be made to Dr. Frederic A. Washburn, Resident Physician, Mass. General Hospital.

APPOINTMENTS.

HAHNEMANN MEDICAL COLLEGE, CHICAGO.—*Dr. S. R. Klein*, formerly professor of histology and embryology at the Fordham University School of Medicine, New York, has been appointed director of the new research laboratories of the Hahnemann Medical College, Chicago.

COLLEGE OF MEDICINE OF SYRACUSE UNIVERSITY.—The trustees announce that *Professor Leverett Dale Bristoll, A. B.*, Wesleyan, *M.D.*, Johns Hopkins, has been called from Minneapolis as professor of bacteriology.

Also the election of *Earl V. Sweet, A.B.* Colgate, *M.D.* Cornell, as Instructor in Histology.

The election of *Mr. John R. Rice, B.S.* Wesleyan, to be instructor in the Department of Hygiene and Preventive Medicine and Assistant in the Municipal Laboratory.

The election of *Albert G. Swift, M.D.* Syracuse University of New York City to be instructor in Clinical Surgery.

The election of *John W. Cox, M.D.*, Syracuse University, to be instructor in Pathology.

ERRATUM.

In the issue of the JOURNAL for Sept. 26th in reviewing a book by Percy G. Stiles the word "Institutional" was used instead of "Nutritional." The exact title of the book follows:

Nutritional Physiology. By PERCY G. STILES, Assistant Professor of Physiology in Simmons College; Instructor in Physiology and Personal Hygiene in the Massachusetts Institute of Technology, Boston. 12mo. of 271 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1912.

RECENT DEATHS.

DR. DANIEL R. AMBROSE, a retired physician of New York, died on October 1st at the Metropolitan Hospital, Blackwell's Island, after a long illness. He was seventy-seven years old, and was graduated from the medical department of the University of the City of New York in 1868.

DR. GEORGE H. KNIGHT, of Salisbury, Conn., who died at Lakeville, Conn., on October 4th, was born at Lakeville in 1855. He studied medicine in New York, and then was for a time the superintendent of the state institute for the feeble-minded in Minnesota. In 1885 he was appointed superintendent of the Connecticut school for imbeciles at Lakeville, a position which he still held at the time of his death. He is survived by his widow and by one daughter.

DR. FRANK JUDSON PARKER, who died on October 2d in New York City, was born in Connecticut in 1872. He graduated from Yale University Medical School in 1898. A few years later he settled in New York, where he became an assistant surgeon at the Manhattan Eye, Ear, and Throat Hospital, ophthalmic surgeon at the Presbyterian Hospital, attending physician at the Blind Babies' Home and consulting ophthalmic surgeon at the Seton Hospital, the Greenwich (Conn.) Hospital, and the New York Orphanage Asylum. He was a member of the American Medical Association, and of the American Academy of Medicine. He was not married.

DR. GIUSEPPE PETACCI, who died at Rome, Italy, on October 1st, had served since December, 1906, as private physician to His Holiness, Pope Pius the Ninth.

DR. EDWIN WESTON TRUEWORTHY, who died on Sept. 13, at Lowell, Mass., was born in 1839. He received the degree of M.D. in 1864 from the University of Vermont. He was a Fellow of The Massachusetts Medical Society.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, SEPT. 28, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	5	1
Chicago	563	190	Waltham	1	—
Philadelphia	—	—	Brookline	5	—
St. Louis	—	—	Chicopee	8	6
Baltimore	—	—	Gloucester	4	1
Cleveland	—	—	Medford	5	2
Buffalo	—	—	North Adams	10	3
Pittsburgh	—	—	Northampton	7	1
Cincinnati	—	—	Beverly	3	—
Milwaukee	—	—	Revere	2	—
Washington	—	—	Leominster	5	1
Providence	—	—	Attleboro	—	—
Boston	192	65	Westfield	4	1
Worcester	50	27	Peabody	—	—
Fall River	41	19	Melrose	2	—
Lowell	32	14	Woburn	2	0
Cambridge	30	15	Newburyport	3	—
New Bedford	23	12	Gardner	—	—
Lynn	15	4	Marlboro	5	1
Springfield	37	12	Clinton	3	1
Lawrence	17	9	Milford	3	0
Somerville	8	4	Adams	4	1
Holyoke	14	5	Framingham	4	1
Brockton	13	6	Weymouth	—	—
Malden	10	5	Watertown	2	0
Haverhill	16	5	Southbridge	4	1
Salem	13	5	Plymouth	1	—
Newton	12	3	Webster	3	2
Fitchburg	16	8	Methuen	—	—
Taunton	11	5	Wakefield	4	1
Everett	7	3	Arlington	5	2
Quincy	9	3	Greenfield	—	—
Chelsea	17	4	Winthrop	0	—

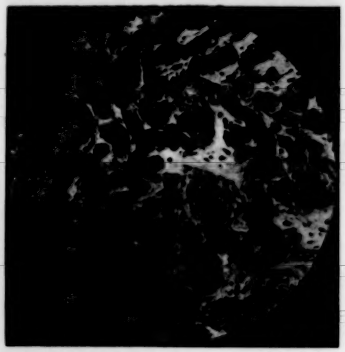


FIG. 1. Photomicrograph of calcification of rabbit's kidney 4 weeks after ligation of renal artery.

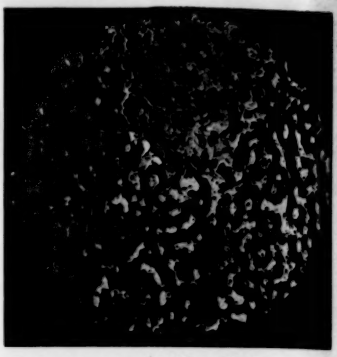


FIG. 2. Focal necrosis of liver from intravenous injection of specific haemolytic immune serum.

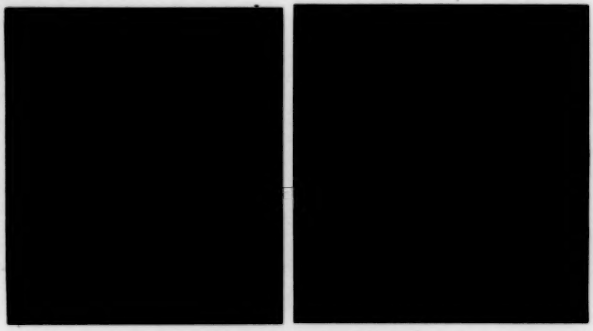


FIG. 3. Aortic regurgitation in dog. Time in seconds.

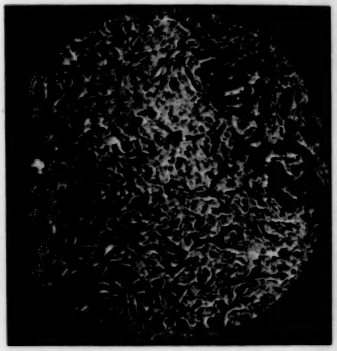


FIG 4. Perilobular fibrosis of rabbit's liver due to ligation of common bile duct 4 weeks before death.

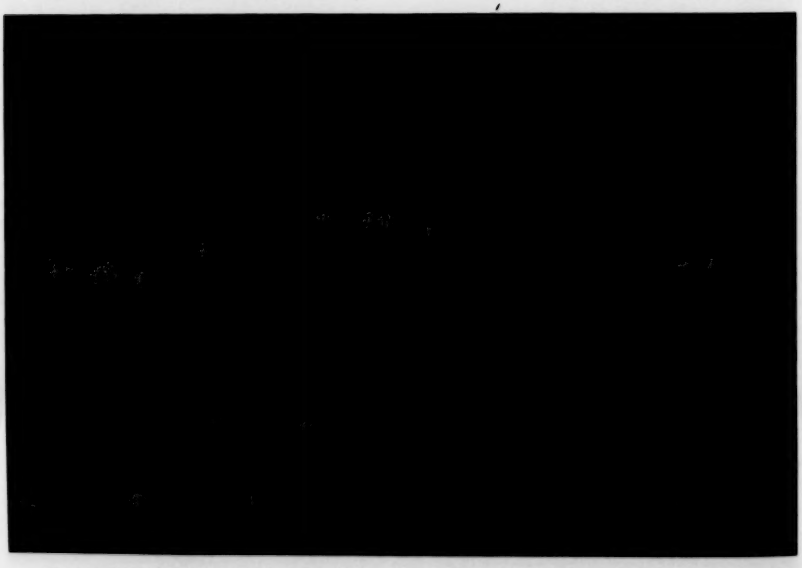


FIG. 5. Effect of adrenalin on blood pressure, kidney volume and urine flow. Urine drops recorded between time line (in seconds) and signal line. Oncometric registration of kidney volume in top line.

Original Articles.

THE FUNCTION OF THE EXPERIMENTAL METHOD IN THE COURSE IN PATHOLOGY.*

BY HOWARD T. KARSNER, M.D., BOSTON,
Assistant Professor of Pathology, Harvard Medical School.

The pedagogical problems of the medical curriculum present in no other field greater complexity than is to be found in the division of pathology. Although in the minds of many, pathology is to be grouped as a fundamental medical science co-ordinate with anatomy, chemistry and physiology, as a matter of fact its field is as comprehensive as these sciences combined, because as has been said pathology is the biology "of life in its abnormal forms and activities." Accepting this conception, pathology stands as the culmination or apex of the other medical sciences and is the point from which branch out the various ramifications of the art of medicine. It takes up pathological anatomy, pathological physiology and pathological chemistry, utilizing them for the explanation of morbid processes and effects in such fashion as to aid in increasing knowledge of disease in all its phases. It must have as its forerunners the sciences mentioned, in their normal relations, and depends on the workers in these fields for much of its material. Never has there appeared any doubt as to the availability of the methods of these fundamental sciences for pathological research and it seems curious that there should have been, in the past, a narrow limitation of the teaching of pathology in America to the field of pathological anatomy. It would seem that this depends largely on custom, and neglect in the past of the dynamic point of view but with the more extensive training of young men in dynamic methods such limitation need no longer exist. To the critical eye, clinical medicine becomes pathological physiology in the broadest sense and if the function of a school is to turn out physicians, meaning those who study the altered functions of their patients by the exact methods of science, there seems to be every reason why, from the earliest possible point in their training, they should be taught to study their patients with the exact methods of science.

The very essence of the graded course makes it inconsistent, even were it considered wise, to have medical students in the early stages of their training, work intimately with living human patients. Even were such a course practicable, the student at this period of his career would profit but little from such an experience, because disease as it occurs in the human subject is so complicated as to be beyond his reach at this period. To grasp the complex, he must first know the simple; to know human disease with its variations caused by a wide variety of environmental conditions, he must first study disease in its simplest form and as free as possible from complicating conditions. This study may be descriptive and is so in many medical schools of this country, finding its presentations during the course of formal lectures on pathology. To reach its highest value, however, it must be made the subject of laboratory training where direct observation is substituted for didactic description, for it is only by the application of such methods at the bedside that the physician fills his highest function. In the early years of the course, however, such training is best accomplished by the use of lower animals with "spontaneous" diseases or animals in which disease artificially has been produced under known and controllable conditions. Such a study may be conducted in several ways; either by description in the course of lectures, by demonstration or by actual performance of the experiments by the students themselves. The last seems to be the best means of having the student take up the work because in this way his interest is maintained by actual participation and his knowledge is more intimate as well as comprehensive than it would be were he to listen to lectures or simply to see demonstrations. The problem of including experimental work in the course of pathology may be solved in a variety of ways: a small group of men, taking an elective course, may study the experimental phases of certain diseases or the diseases of certain organs; the entire class may perform certain selected experiments, which must of necessity be small in number; the entire class may in rotation of small groups participate in an extensive series of experiments, the results being demonstrated by the participating students to their fellows. If the object of such a course were to make the students experimental pathologists, the time devoted to pathology is so limited as to make the outcome a dismal failure. If, however, the object is to make living the study of pathology, and to train the student in the logical spirit of the experimental method of approaching medical problems, the time already allotted is in most cases sufficient provided the work is so arranged that while the class is studying the morbid anatomy and histology of a certain division of pathology a group of the students, after becoming oriented in the anatomical studies, can turn their attention to the functional phases of the same conditions; the remainder of the class being informed of the nature of the experimental work being undertaken and watching as occasion permits. Such a method has an additional advantage in that the subject of experimental pathology is taught as an integral part of the regular work in pathology, not as an independent subject, and further this method removes from the mind of the student any idea that experimental pathology is in any sense detached from, or independent of, general pathology. It maintains the proper proportion be-

* Presented before the Triennial Meeting of The Harvard Medical Alumni Association, May 22, 1912; abstracted in the proceedings of the meeting published in THE BOSTON MEDICAL AND SURGICAL JOURNAL, 1912, vol. clxvi, p. 879, and referred to in a letter published 1912, vol. clxvii, p. 72.

tween structure and function and brings to the student the relative importance of the structural alterations that he studies. His clinical work becomes, as it should be, the study of pathological physiology in the broadest sense and his patient the subject of his most painstaking investigation.

Naturally, in a class of students there are many who take up experimental work with more enthusiasm than others, some appear to be well adapted to the technical difficulties of certain procedures and a few seem so utterly unfitted for the work as to make their time appear to be wasted. Careful observation, however, will show that those men who conduct experiments poorly are also deficient in their other work, not only in pathology, but also in other studies. Coming fresh from the experimental work of physiology and biological chemistry the vast majority of the students are able readily to grasp the application of these and anatomical methods to their work in pathology and require very little intimate direction beyond outlining the nature of the experiment and the placing at their disposal of a proper and sufficient equipment.

The equipment should be as complete as possible, for the student has his capabilities taxed in the carrying out of the work under favorable conditions and it seems unfair to ask him to improvise apparatus when a little forethought on the part of the instructor can be of great advantage in this respect. Ingenuity should be encouraged, but the youth and relatively short experience of the student should be considered in making the preparations for his work*

The instruction can be given by one man who devotes most of his teaching time to this purpose. Although conditions necessitate that this man be a man deeply interested in research problems and with especial training in a more or less highly specialized field, there is no reason why he cannot at the same time have acquired sufficient practical knowledge of the methods of physiology, chemistry, surgical technique and bacteriology to be able efficiently to direct the application of these methods to the course, for his students come to him usually with training in all these fields with the exception of surgical technique.

The instructor's work is made very much easier by the services of a "diener," who is employed to assist in all the experimental work of the laboratory. The assistance of the laboratory technician is required frequently for aiding the students in the preparation of frozen sections of the lesions produced.

One has only to read the "Einleitung" to Cohnheim's "Pathologie"[1] to know that experimental pathology as a method of research and teaching is no new thing, but its identity has been more or less obscured by the rise of bacteriology as an especial branch of pathology. In the early days of the establishment of "full time" chairs of pathology in America the same dynamic point of view was ably championed by Welch[2] and his pupils have ably followed in his path. Indeed it seems that much of the impetus that has led to the development of this field of work in recent years has been given by the publications of MacCallum[3] who instituted an elective course at Johns Hopkins University available for a small number of students and covering in the two months allotted a special system, such as the respiratory or circulatory system. Brief courses had been given by Leo Loeb at the University of Pennsylvania and formed a part of the instruction in pathology at the Harvard Medical School and somewhat similar courses were given by Rous at the University of Michigan and a little later by Longcope at the University of Pennsylvania. There is no doubt that numerous schools, as for example the University of Minnesota, have availed themselves of a number of experimental procedures in the courses in pathology. It remained for Pearce,[4] however, to adapt the experimental method to large classes, which he did in a course given at the University of Pennsylvania in 1911, covering an extensive field of experiments, the experiments being performed by the instructing staff and demonstrated to groups of nine students. The publication of this method has stimulated other teachers to renewed interest in the application of the experimental method and several institutions have taken up the work.

Gay[5] has adapted many of the experiments to his small classes at the University of California, where his combined work in pathology and bacteriology enables him to correlate these subjects and the work in infection, inflammation and immunity in a most excellent manner, necessitating, however, the addition of numerous experimental procedures in the fields indicated to those included in Pearce's scheme. He, however, gives little work in pathological physiology and chemistry, which would seem of great importance in connection with general pathology and are invaluable adjuncts to the study of systemic pathology, particularly of the circulatory, respiratory, urinary system and the liver. Of great significance is the fact that his students actually perform the experiments and that the entire work shows intimate correlation of the various fields covered.

The course instituted at the Harvard Medical School in October, 1911, follows in much detail the course outlined by Pearce but has eliminated a few of his experiments and has added several from other sources as for example

* The cost of equipment in a laboratory which previously has not devoted itself to experimental work should amount to about $500, including the necessary apparatus for physiological, chemical, bacteriological, immunological and surgical procedures. The apparatus for histological work is not included in this estimate, nor the installation of gas, electricity and compressed air. The sum for maintenance depends so much on the price of animals in different localities that it may vary considerably in different schools. As outlined, the course demands approximately 33 rabbits, 27 guinea pigs, 17 dogs, 14 cats, 1 pigeon or chicken, 5 white rats, 10 mice; the number increasing slightly because of the repetition of unsuccessful experiments.

The chemicals used form part of the stock of the well equipped pathological laboratory except for a few special materials, the cost of which does not exceed $25. About 10 pounds of ether and 2 pounds of chloroform are used. Gauze, muslin and cotton are used freely, but constitute a very small part of the expense of maintenance.

some of those used by Leo Loeb. In addition suggestions have been made by Professor W. T. Councilman which have proven invaluable and his interest has been a source of constant inspiration. Instead of having the work done by instructors, groups of from two to five students perform the experiments, the number of men depending on the character of the experiment, the larger number being required for aseptic surgical and the more complicated physiological experiments. One man is made responsible for the experiment and is required to make a complete report on a card furnished for the purpose. This card indicates the value of the experiment, kind, color, sex of animal, anesthesia, duration of experiment, results, physiological, chemical, bacteriological, histological, anatomical findings and any other features of interest observed by the student. If the experiment is sufficiently simple, it is demonstrated to the class in groups of ten students, by the man in charge of the experiment. If complex in nature, the demonstration is in charge of the instructor.

The work is done in two rooms, one of which is equipped for the various physiological, chemical and surgical procedures required, the other being a well lighted, well ventilated, observation room containing metabolism cages for large and small animals, a rack of cages for guinea-pigs and rabbits and a number of cages for cats and rabbits. The stock of normal animals is kept in an animal house provided by the school. The two rooms adjoin and a third adjoining room used by the class for studies in gross morbid anatomy, is used for the study of experimental lesions and is equipped with stains and a frozen section microtome for the microscopical preparations. A fourth adjoining room is to be equipped with incubators and other apparatus for bacteriological work. The chemical equipment is mainly that for the Folin colorimetric nitrogen determinations and the ordinary clinical tests of blood and urine. These rooms are separated from the large class room and lecture room only by a hallway so that the student is within easy reach of all the teaching rooms.

For the experimental study of degenerations, cloudy swelling and fatty degeneration are most adaptable. Cloudy swelling can be produced by injecting 0.001 gm. cantharadin dissolved in acetic ether, subcutaneously into a guinea-pig daily for three days. Histological sections and salt solution suspensions of fresh scrapings from the liver and kidneys present instructive pictures. Fatty degeneration can be produced in the cat or dog by administration, through the stomach tube, of phosphorus in olive oil in doses of 0.020 gm. to the kilogram of body weight. Frozen sections and scrapings of liver can be stained with Scharlach R. and studied.

Calcification is best produced experimentally by the ligation, aseptically and under ether anesthesia, of the renal artery of a rabbit. Autopsy at the end of four weeks shows the organ shrunken, extensively calcified, and occasionally partly ossified. (See Fig. 1.) Fibrosis and necrosis are marked and the deposition of the calcium salts in the renal tubules is clearly made out on histological examination. An additional experiment in the so-called metastatic calcification is made by the injection of 10 cc. saturated calcium lactate solution into the peritoneal cavity of a rabbit. Stomach and lungs show the metastatic deposit of the precipitated lime.

Of great interest in pigmentation is the phagocytosis and transference of the pigment granules. Five cubic centimetres of finely divided cinnibar suspension are injected into the peritoneum and in various subcutaneous positions in a rabbit or guinea-pig. Autopsy and microscopic sections 24 hours later show beautifully the phagocytosis and distribution of pigment in the regional lymphatic apparatus. Biliary pigmentation of the liver and other tissues can be demonstrated by the ligation of the common duct of the cat or rabbit, preferably the former. The liver shows diffuse pigmentation as well as focal accumulation of granules.

For the experimental phases of necrosis the student is referred to the effect of the ligation of the renal artery of the rabbit. A most striking example is seen in the liver of guinea-pigs which have been subjected to prolonged chloroform anesthesia. This can be done successfully by placing several animals in a box with a glass cover and forcing the chloroform vapor in by means of compressed air. An outlet is placed at the opposite end of the box to provide for the free passage of the vapor and the animals observed through the glass cover. Repetition on two or three successive days ensures the success of the experiment and if the animals are killed at different periods the rapidity of regeneration can be followed. Ether necrosis and specific immune serum necrosis are studied later in connection with diseases of the liver.

The experiments possible on the subject of inflammation are so numerous and varied that only a relatively small group can be performed. Most important seem to be those connected with the processes of exudation, phagocytosis and repair. In the first group are included the study of the rabbit's ear after exposure to water at 53° C. for three minutes. A similar study of the rabbit's ear rubbed with croton oil gives the living example of the cardinal symptoms of inflammation. A similar set of experiments in rabbits whose servical symphthetic has been divided in the neck shows the lack of influence of the vaso-motor nerves.

The production of leukocytic exudate in the rabbit's pleura by the injection of a few cubic centimetres aleuronat suspension, of a purulent exudate by the injection of 1 cc. bouillon culture bacillus coli communis or staphylococcus pyogenes aureus, and the production of a serofibrinous exudate by means of the injection into the pleura of 2 cc. turpentine, gives opportunity for the study of exudates and of the different

causes of the exudate. The localized abscess can be produced by the subcutaneous injection of a fresh culture of staphylococcus aureus or better colon bacillus, and the metastatic abscesses of kidney and heart produced by injection of 1 cc. 24 hour bouillon culture staphylococcus aureus into the posterior auricular vein of the rabbit. Both these experiments should include careful microscopical examination of the pus and of the diseased tissues.

For the study of phagocytosis, references to the experiment in pigmentation is important, for the purpose of pointing out the phagocytosis of mineral inert particles. For the study of phagocytosis of animal cells 3 cc. mixture equal parts salt solution and defibrinated pigeon's blood should be injected into the peritoneal cavity of a guinea-pig. Englobement, vacuole formation and digestion can be studied by withdrawing some of the material in the peritoneum by means of a drawn-out capillary pipette at the end of one, two and three days, making spreads and staining with Wright's stain. A similar experiment, using a bouillon culture of colon bacillus and withdrawing the exudate at 6, 12 and 24 hours shows the phagocytosis of vegetable cells. Important is the influence of opsonins on phagocytosis. This is well illustrated by following these brief directions: Into a 7 x 75 mm. test tube two thirds filled with 1% sodium citrate solution drop 20 drops human blood (fellow student), centrifuge and collect the leukocytes in a warm drawn-out glass pipette. Collect a small amount of blood in a Wright tube, allow to clot, centrifuge and collect serum. Make a salt solution suspension (5 cc.) of a 24-hour slant agar culture of staphylococcus pyogenes aureus. Draw out several glass pipettes of approximately uniform diameter and make a point with a blue pencil. Fill to mark with leukocyte suspension, permit some air to run in, then to mark with bacterial suspension, then more air, then to mark with salt solution. Expel into a sterile Petri dish, mix and allow to run into pipette again. Repeat, using a fresh tube and serum instead of salt solution. Incubate the tubes 20 minutes, make spreads, stain with Wright's stain and note the difference produced by the opsonins of the serum.

For the study of repair, three experiments are of value. After removing the hair from two areas in the opposite flanks of a guinea-pig, the areas should be washed, the animal anesthetized and a linear wound made in each area. Into one an agar culture colon bacillus should be rubbed, the other to be kept clean. The delay of repair in the infected area usually is striking. Repair in a more complicated structure can be observed by fracturing the livers of six guinea-pigs under complete ether anesthesia, then killing one on alternate days and studying in sections the sequence of changes. Repair in a non-vascular structure can be studied by making, under deep ether anesthesia, a linear wound in the cornea of a rabbit. The repair is rapid and instructive pictures can be obtained by making sections of the cornea at the end of three days.

For the study of some especial phases of blood destruction, anemia and hematogenous jaundice, the following experiments are of value. The hemolytic effect of the intravenous injection into a rabbit of a solution of 0.001 gm. dried rattlesnake venom in salt solution. Place the animal in a metabolism cage, note the hemoglobinuria and at autopsy study the hemoglobinemia and the general tissue changes. In contrast the subcutaneous injection of 0.001 gm. cantharadin in acetic ether produces in the rabbit, hematuria and somewhat different tissue changes, especially in the kidney. Blood destruction, hemoglobinuria and jaundice can be produced by the intravenous injection of a specific immune serum. This is done in the cat, usually in amounts of 0.5 cc. immune serum to the kilo of body weight. Autopsy at the end of two or three days should include careful examination of the spleen and lymph nodes for phagocytosis of destroyed blood corpuscles, of the liver for focal necrosis (see Fig. 2) and of the kidneys for nephritis. A similar experiment in the recently splenectomized animal shows the most marked phagocytosis of red blood cells in the lymph nodes. (Unpublished work of R. M. Pearce, to appear in *Jour. Exp. Med.*, now in press.)

Hemolysis in vitro can be determined as follows: Place in each of four test tubes 1 cc. 5% suspension cat's erythrocytes in salt solution. Add to test tube 1, 2 cc. salt solution, to test tube 2, 0.1 cc. guinea-pig serum (complement) and 1.9 cc. salt solution; to test tube 3, 1 cc. dilution of specific immune serum (amboceptor) which has been inactivated by a temperature of 56° C. for ½ hour; and to test tube 4, 0.1 cc. complement, 0.9 cc. salt solution, and 1 cc. amboceptor dilution. Incubate for one hour at 37° C. and note that the presence of both amboceptor and complement is necessary for hemolysis.

The experiments in circulation cover the simpler experiments in thrombosis and embolism and the physiology of certain pericardial, myocardial and endocardial lesions.

1. Under anesthesia, aseptically expose the jugular vein of a cat, sear lightly with a hot platinum needle, and after three minutes, excise, fix, imbed and section; platelet thrombosis occurs.

2. Under anesthesia and aseptically mechanically injure the jugular vein of a cat by pinching and twisting in a hemostatic forceps. The carotid can be injured or tied off in the same animal and at autopsy 24 hours later, the thrombosis in both vessels studied.

3. Under anesthesia, aseptically insert into the aorta of a dog, through the external iliac artery, by means of a special cannula a number of tobacco seeds. Manually compress the mesenteric arteries at the time of injection so as to avoid mesenteric infarction. Autopsy at the

end of one week and study the infarcts in kidney and spleen, both grossly and histologically.

4. Inject 2 cc. olive oil into the posterior auricular vain of a rabbit. Observe the symptoms, and after death perform autopsy, studying especially froxen sections of lung, brain, kidney stained with Sharlach R., for the oil (fat) emboli.

5. Under anesthesia connect the carotid arery of a cat with the mercury manometer, make pneumograph connections, and inject into the femoral vein 30 cc. air in portions of 10 cc. Study the tracings of blood pressure, pulse and respiration. Autopsy, clamping off the great vessels and open the heart under water to show the air in the right side. The auricle and ventricle frequently show foamy fibrin thrombi also.

6. Hydropericardium may be produced by opening the thorax of a dog under ether anesthesia and artificial respiration, and injecting into the pericardium from 30 to 75 cc. olive oil. Connect the femoral artery with the manometer and note the depression of cardiac action shown in the kymographic tracings.

7. Aortic stenosis. Under ether anesthesia and artificial respiration, open the thorax of a dog and constrict the aorta near its origin by means of a heavy silk ligature. Note the effects by the kymographic registration of heart action and blood pressure (see Fig. 3).

8. Aortic regurgitation may be produced in the same animal by introducing a valve hook through the carotid artery and tearing the aortic valve. The effect on the circulation is marked by a notable fall in pressure and the establishment of the water-hammer pulse. All the valve lesions are to be studied with the multiple stethoscope.

9. Myocardial degeneration. Under ether anesthesia and artificial respiration, open the thorax of a dog and inject into the cardiac muscle in numerous places, small amounts of 95% alcohol. With kymographic registration note the great reserve force of the heart and the final fall in pressure and arrhythmia after a large part of the muscle has been incapacitated.

10. Arteriosclerosis. Inject into the posterior aricular vein of a young rabbit three drops adrenalin. Inject daily for one week, increasing the dose by one drop each day. Autopsy at the end of two weeks and carefully observe the aorta for sclerosis, making sections of the vessel and of the cardiac muscle. The latter frequently shows myocardial degeneration, fibrosis and hypertrophy.

The complexity of the experimental work in tumors makes it advisable to limit the students' work to the simple transplantation of an inoculable mouse tumor. An affected mouse is chloroformed, and the skin over the tumor laid back with aseptic precautions. Small pieces of the non-necrotic part of the tumor are placed into a special cannula, the obturator inserted so that the tumor makes its appearance at the sharp end of the cannula. The cannula is inserted subcutaneously at the posterior end of the back of a normal mouse and pushed forward subcutaneously until the point lies in the axilla. The obturator is pushed in so as to discharge the contents of the cannula, the skin is pinched about the end of the cannula and the instrument slowly withdrawn. The operation is repeated so as to inoculate mice and their condition observed over several weeks.

The experiments in infection overlap those of inflammation so that the student is referred to those on the latter subject for some of the simpler manifestations of infection. For the study of the effects of diphtheria bacilli and their toxin inject subcutaneously into a guinea-pig 0.5 cc. 24 hour bouillon culture bacillus diphtheria and into another guinea-pig 2 units of diphtheria toxin. Observe the clinical course of the condition in both animals, at death perform autopsy and make histological and bacteriological examinations. The experiment is made additionally interesting by protecting other animals by the use of anti-toxins. Similar experiments with bacillus dysenteriae and its toxin are of value but the protecting influence of anti-toxin is so slight as to be of little value in this experiment. The production of "rat typhoid" by the subcutaneous injection of 0.5 cc. 24 hour bouillon culture bacillus murisepticus, shows interesting lesions, which almost duplicate those of human typhoid. The special lesions of pneumococcus septicaemia in rabbits are best studied by the injection of 0.5 cc. 24 hour neutral bouillon culture of pneumococcus into the posterior auricular vein. The student can get the culture by injecting pneumonic sputum intraperitoneally in the mouse and making cultures from the heart's blood after death. The same culture can be used for intrabronchial injection into the dog in amounts of 6 cc. The dog should be killed at the end of two or three days after close clinical study and the autopsy should include careful histological and bacteriological study. Tuberculosis and syphilis present interesting experimental lesions. Two guinea-pigs should be injected intraperitoneally each with 0.5 cc. salt solution suspension human type tubercle bacilli and two others with bovine type bacilli. The animals are to be observed clinically until death. The differences in clinical course and findings at autopsy should be noted. The material from a chancre or moist syphilitic condyloma should be injected into the testicle or under the skin of the scrotum of a rabbit. With the appearance of the lesions, smears should be studied, the animal killed, sections of the testicle studied by ordinary histological methods and by the Ghoreyeb method for spreads and Levaditi method for tissues.

Urinary System. Experimental hydronephrosis is best produced in the cat by aseptic ligation of a ureter under deep ether anesthesia, the autopsy being performed three weeks later. The experiment can be repeated, injecting into the pelvis 0.5 cc. 24 hour bouillon culture colon ba-

cillus so as to produce pyonephrosis, the autopsy being performed one week later. Various types of acute experimental nephritis are produced by injecting into rabbits as follows: for tubular nephritis, 0.05 gm. potassium chromate; for vascular nephritis, 0.001 gm. cantharadin in acetic ether; interstitial nephritis, daily injections for three days of 10.0 cc. 1-1000 mercuric chloride solution; acute nephritis with edema, 0.001 gm. uranium nitrate and daily administration by stomach tube of 50 to 100 cc. water. All the animals are kept in metabolism cages and daily examinations of the urine made. At the termination of two or three days autopsies are performed and the kidneys and other organs studied grossly and histologically. Arsenic nephritis (glomerular) has to be studied more quickly, the urine examination and autopsy being made within an hour after the injection of 0.010 gm. potassium arsenate.

For studies in nitrogen metabolism a cat is placed on a meat diet which keeps its weight constant, the non-protein nitrogen and urea nitrogen of the blood being determined by the Folin colorimetric methods on several occasions for purposes of control. The cat is then given 0.002 gms. uranium nitrate and on the next day and alternate days following, the nitrogen determinations made. Daily urine examinations and complete autopsy are to be made. These experiments are followed by a demonstration of the vascular reactions of dogs the subjects of tubular and vascular nephritis, by the kymographic registration of kidney, volume, blood pressure and diuresis.

Gastro-intestinal System. For the performance of the experiments on acute toxic gastritis, cats are to be carefully and deeply anesthetized with ether. The animals do not recover from anesthesia. Four animals are given respectively 10 cc. carbolic acid, sulphuric acid, and saturated sodium hydrate through a glass stomach tube. The animals are killed by chloroform in 15 minutes and the stomach studied grossly and histologically. For the production of gastric ulcer, two erosion experiments are performed. In the first, six guinea-pigs are given about 0.001 gm. snake venom and the autopsies performed at the end of 48 hours, typical hemorrhagic erosions appearing in several of the animals. A dog is anesthetized and a small amount of agar aseptically injected beneath the mucosa of the stomach. Autopsy at the end of 48 hours shows erosion of the separated mucosa. Of the intestinal lesions the most instructive appears to be the production of intussusception. This is done under ether anesthesia and aseptically, it being found necessary to place one or two stitches so as to maintain the intussusception. Autopsy at the end of 24 hours shows local peritonitis, gangrene and the mode of obstruction.

Pancreas and diabetes. Acute hemorrhagic and necrotic pancreatitis is produced by injecting into the pancreatic duct of a dog (aseptically and with ether anesthesia), either through the papilla or directly into the duct about 3 cc. dog's bile (same animal—obtained by gall bladder puncture). At the end of 24 hours most marked pancreatitis and extensive fat necrosis appear. Most important in connection with the pancreas is diabetes and at this time experiments in glycosuria are best made. Pancreatic glycosuria is produced by completely extirpating the dog's pancreas, aseptically and under ether anesthesia. The animal is observed in a metabolism cage. For other forms of glycosuria the rabbit is used as follows: for renal glycosuria, the hypodermic injection of 0.25 gm. phlorrhizin dissolved in 5.0 cc. warm water; for asphyxial glycosuria, hypodermic injection 2-3 cc. 4% morphine sulphate solution; adrenalin glycosuria, hypodermic injection 2.0 cc. 1-1000 adrenalin solution. The animals are observed closely in metabolism cages and advantage is taken of the morphinized animal to make pneumographic tracings of Cheyne-Stokes respiration. The so-called puncture glycosuria is produced as follows: Under ether anesthesia expose the occipital protuberance of a rabbit's skull, trephine just posteriorly and push in through the cerebellum a special puncture knife or a drawn out glass rod. Hold the instrument so that it will bisect the line joining the external opening of the two ears and send it in until it is felt to have met the basilar bone. Place in metabolism cage and examine the urine in two hours. At death perform autopsy and verify position of puncture.

Liver. Experimental focal necrosis of the liver has been studied in connection with the experiments on blood destruction and those on necrosis. A similar condition can be produced by injecting 0.5 cc. ether into the posterior auricular vein of a rabbit or 2.0 cc. ether into the jugular vein of a cat. Histologic sections are to be made 24 hours later. Of interest is the jaundice produced by the ligature of the common bile duct of the dog, studying the general jaundice, pallid stools and the pigmentation of the urine. Experimental cirrhosis is best produced by ligating the common duct of a rabbit and performing the autopsy at the end of four weeks (see Fig.4).

The study of experimental conditions of the lungs and thorax include certain experiments in inflammation already taken up, the various forms of pleurisy. The production of pneumothorax by the injection of 500 cc. air into the thorax of an anesthetized dog can be studied by observing the effect on respiration and blood pressure as indicated by the kymograph. The trachea should be clamped before opening the thorax at autopsy so as to show the atelectasis of the lungs. The experiment can be repeated using salt solution or olive oil instead of air, with the production of hydrothorax. Asthma is studied in the clinical manifestations of immediate anaphylaxis in the guinea-pig and at autopsy the underlying acute emphysema. Edema of the lungs (usually associated with hemorrhage) can be produced by the injection into the posterior auricular vein of a rabbit of 0.7 cc.

1-1000 adrenalin solution. Acute bronchitis can be produced in the cat by the inhalation through a tracheal cannula of the fumes of strong ammonia. The physical signs are studied, especially with the multiple stethoscope (rales) and the autopsy performed to show the acute inflammatory process.

In order to bring to the student's attention the importance of the ductless glands a few experiments are performed on the effects of injection of extracts and the effects of excision. The local vasoconstrictor effect of adrenalin as seen in the rabbit's eye, the effect of adrenalin on blood pressure, kidney volume and diuresis as seen in the dog (see Fig. 5) and the result of extirpation of the cat's adrenals are of especial importance. Hypophysectomy is considered to be too difficult an operation for the students, but they can study the effect on blood pressure, kidney volume and diuresis as seen in the dog resulting from the injection of extracts of whole hypophysis. Parathyroidectomy can be done by the students and the effect on the tetany of the injection of calcium salts studied.

The preceding description of the experiments appears in large part in the manual of pathology used in this school[6] and in this form the intimate correlation of the functional and anatomical studies is indicated. The total number of experiments is large enough to enable each student to have charge of at least one experiment (extending over a period ranging from a few hours to as much as six weeks) and to assist in the performance of from three to five experiments in charge of other members of his class. The students are under the close personal supervision of the instructor, but are encouraged to work with as little verbal direction as possible so as to encourage ingenuity in method, detailed observation and thoughtfulness in interpreting the results obtained.

The importance of drawing to the attention of the students the fact that the animals are to be regarded as patients cannot be over-estimated, for the continuance of such work as well as the dictates of humanity direct that the utmost care be taken to avoid pain or unnecessary roughness in the handling of the animals. To this purpose the "Rules Regarding Animals," of the Bureau for the Protection of Research, of the American Medical Association, are placed in a prominent place in the laboratory, a "diener" is provided to etherize properly and to care for the animals that survive for continued observation. A considerable number of the experiments involve only simple injections and observation for a few days, and are therefore painless throughout. Most of the dogs and cats used are for physiological work and are killed on the termination of the experiment without being permitted to recover. Of the total of 107 animals used, only 11 survive surgical operations and these are given the best possible care and attention. Thus the spirit of the "Rules" is as carefully observed as the letter.

The novelty of the course consists in the facts that it makes actual participation in experimental work available to large classes, and that the work throughout can be arranged in close correlation with the work in morbid anatomy and histopathology, in such fashion as to enliven interest in pathology in its broadest application and to bring intimately to the mind of the student not only the logical sequence of cause and effect, but also the relation of pathology to clinical medicine.

The accompanying illustrations of lesions and physiological tracings are fair examples of the character of the work done by the students and in a limited way show how the work can be developed.

At the Harvard Medical School the expense of this course was borne by the fund provided by Dr. John C. Phillips, the fund and the equipment provided by it, serving as the foundation for most of the experimental work of the laboratory.

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PRACTICAL POINTS IN THE TREATMENT OF ENLARGED CERVICAL GLANDS IN CHILDREN.*

BY JAMES S. STONE, M.D., BOSTON.

A few years ago the early and radical excision of the lymph nodes of the neck was advised in practically all cases of tuberculous cervical adenitis. The operations advised were radical, involving often the division of the sterno-mastoid and omo-hyoid muscles, and sometimes the sacrifice of important nerves.

There followed a strong reaction from that radical teaching. The tendency today is strong to treat cases of adenitis conservatively, depending mainly on general hygienic measures, with perhaps the aid of tuberculin, with surgical interference as an aid to healing when required. There must be reasons for the swing of the pendulum from one extreme to the other. Radical treatment could not have been wholly satisfactory. The positive reasons for the reaction to conservatism are two: First, in many instances, even after the radical removal of all the lymph nodes, there were recurrences. Second, the disfiguring scars and at times paralyses following nerve injuries were a source of dissatisfaction.

It came to be recognized that the disfiguring scars and deformities following some radical

* Read before the New England Pediatric Society, on May 11, 1912.

operations might be worse than the result would have been if the trouble had been left to nature to heal. In addition there was a growing skepticism as to the absolute necessity of such radical procedures as well as a growing recognition of the great tolerance which children especially show to many forms of tuberculosis, and of the great value of hygienic treatment.

These latter considerations will exert a permanent influence. But the arguments against operative interference should be against faulty methods rather than against surgical treatment. The recurrences after radical excision for example of all the glands of one side of the neck were due to the failure to recognize and remove the primary foci of infection or the vulnerable points of entrance. The complication was treated while the primary disease was ignored. The common diagnosis of cervical adenitis without a statement of the primary source of infection should be regarded as a matter for reproach. Today the absolute need of the removal of the primary source of infection is to be regarded as a matter beyond dispute.

The special points which I wish to discuss are (1) The importance of the various sources of infection, (2) The time and indications for surgical interference, and (3) The manner of the interference in particular cases.

First, as regards the relation of the various sources of infection to the several groups of glands and to the form of infection. From the standpoint of the anatomist the lymph vessels anastomose so freely that the attempt to define the relation between the source of trouble and the various groups of glands from anatomical study is frequently confusing. Repeated clinical observation of the relation between source and involved glands is of greater practical value than scattered anatomical studies.

The most common source of trouble lies in the tonsils or the naso-pharynx, and the glands most commonly involved are those which receive the lymphatics from these points. Any disease or inflammation in the tonsils, the adenoids or the adjacent tissues of the naso-pharynx causes, usually very promptly, an enlargement of the lymph glands, which lie a little below and behind the angle of the jaw and immediately in front of or under the anterior edge of the middle of the sterno-mastoid muscle. It is not easy to say from the involvement of the lymph nodes whether the primary trouble is in the faucial tonsils or in the adenoids. Yet the location of the glandular trouble may give a very definite suggestion that the trouble is in the tonsils or in the posterior pharyngeal wall. This can be told only when the glands which are enlarged lie distinctly in front of the sterno-mastoid in the one instance, or distinctly far back beneath the sterno-mastoid in the other.

The fact that the glands well under the sterno-mastoid are much less often primarily involved than are those in front of it, is strongly suggestive that adenoids are much less often the seat of serious infection than are the faucial tonsils. When both adenoids and tonsils are causing inflammation in the lymph nodes the whole group of glands lying both in front of and underneath the sterno-mastoid will be found involved.

Although the more frequent enlargement of the glands in front of the sterno-mastoid suggest that the tonsils are a more frequent source of infection than the adenoids, yet enlargement of the adenoids is fully as common as is tonsillar hypertrophy. This means simply that the adenoids may be large without being the seat of severe bacterial infection, and that the tonsils may be the seat of serious infection without much enlargement or marked local manifestations. Furthermore the tonsils may be considerably enlarged but still deeply buried by the pillars, and not causing any marked projection into the mouth. On the other hand the location of the adenoids is such that even slight enlargement will cause a marked pushing forward into the limited space of the naso-pharynx, necessarily causing marked clinical symptoms. The location of the tonsils permits infection from food, as well as from air, a fact of importance in considering the source of infection of the cervical glands with tuberculosis of the bovine type.

The very direct and short communication between the tonsils and the lymphatic glands explains the frequency with which a marked lymphatic involvement may originate in a small concealed focus in a tonsil which does not seem particularly enlarged or inflamed.

The other groups of glands about the neck and face are of course less likely to be affected by tuberculosis than are the throat glands, because of the lessened chances for the tubercle bacilli to enter elsewhere than through the lymphoid tissues of the throat.

Practically speaking, all the lymphatics in front of a line drawn vertically upward from the middle of the auditory canal and above a line drawn from the auditory canal to the outer corner of the eye lead to the preauricular glands, situated deeply just below the zygoma and just in front of the auditory canal. An infection of the forehead or front of the scalp, an eczema or intertrigo in the crease between the scalp and top of the external ear, a furunculosis of the anterior wall of the auditory canal, may lead to involvement of the preauricular nodes. Usually the infection is pyogenic, occasionally tuberculous.

The next lower group of nodes is situated close about the facial artery and vein, where they run along the groove directly in front of the angle of the jaw. The glands may lie either on the external surface of the jaw or just below it. Sometimes they lie below and slightly inside the jaw. They receive the vessels which come from the central portion of the face. Roughly speaking, the lymphatics which come from above the outer corner of the mouth and from below the outer corner of the eye lead to these glands. Thus the most common source of infection is

found to be about the nostrils. The cracks and cold sores which occur there, and fissures about the corners of the mouth, may cause trouble. So too may any irritation within the nose or about the base of the nose, or the inner corner of the eye. Some of the lymphatics from the upper jaw too pass upward to the mucous surface of the cheek and then run down and back in the substance of the cheek beneath the mucous membrane to these glands near the angle of the jaw.

The lymphatic vessels from the lower lip and chin drain into the submaxillary glands behind the symphysis of the jaw.

Behind the auditory canal are two groups of glands, one under the occiput receives the lymph from the scalp and is most frequently enlarged as a result of the scratches incident to pediculosis; the other under the mastoid may be involved as a result of infection in the middle ear or mastoid cells, though frequently an intertrigo in the fold back of the ear may cause suppuration in these glands below the mastoid process.

Cavities in the teeth act as lodging places for infecting organisms, but do not directly cause lymphatic trouble. The direct infection comes when the gums or the bone about the roots of the teeth are involved. Some of the lymphatics from the upper jaw pass, as has been stated, through the substance of the cheek to the glands at the angle of the lower jaw; others pass back and merge with those coming from the throat. Those from the lower jaw pass into the submaxillary glands.

In connection with trouble arising from the teeth it may be well to state that involvement of the glands just in front of the angle of the jaw may at times closely simulate an alveolar abscess. The lymphatics lie in such close relation to the periosteum of the lower jaw that as soon as periglandular inflammation begins the glands become fixed to the lower jaw and when suppuration comes on the pus is situated very close to the bone. Arising from the glands, however, the abscess always lies outside the periosteum. The shape of the abscess, the position behind rather than below the carious teeth, the absence of thickening of the jaw itself distinguish glandular from alveolar abscesses.

There are also a few glands behind the posterior pharyngeal wall. These are a source of origin for post-pharyngeal abscesses, which are usually at first at least to one side or other of the middle line. These abscesses may extend out into the tissues of the neck and be easily drained externally. Occasionally separate abscesses are found at the same time, one external, the other post-pharyngeal. Rarely enlarged post-pharyngeal glands are discovered before suppuration has occurred.

THE TIME AND INDICATIONS FOR INTERFERENCE.

In the abundant literature it is difficult to find clearly marked the types of cases which should be operated upon and the types which may well be treated conservatively.

As far as possible the acute pyogenic infections are to be differentiated from the tuberculous. The location of the glands and the source of infection have already been mentioned as giving one clue. A rapid and severe onset, the sudden appearance of a large tumor, the marked tenderness, the local heat, the marked constitutional disturbance, are the signs which usually indicate an acute pyogenic infection. The progress of the trouble is rapid. In the tuberculous glands the trouble usually progresses much more slowly, often intermittently. There is less fever, less local heat, less pain, less tenderness.

In either case the natural history of the disease must be understood. Swelling followed by hyperplasia is always the first stage. In tuberculous infections this may come on suddenly. In pyogenic infections it never comes on slowly, though gradual hyperplasia may come on as a coincidence before the occurrence of severe pyogenic infection. As a rule, however, it is fair to assume that progressive hyperplasia of gradual onset is almost always tuberculous. If the glands can take care of the infection the swelling subsides, all the symptoms disappear, except that there remains some permanent hyperplasia. A lymph node once swollen always remains somewhat enlarged. The glandular swellings which subside in this way are those often classed as simply inflammatory.

In the pyogenic cases the infection may be so severe as to make resolution impossible. In tuberculous or in pyogenic cases the infection may be so long continued that recovery is impossible.

In the tuberculous infections, if the trouble progresses, in course of time the hyperplastic glands show definite foci of tuberculosis, often several in a single gland. As the disease progresses these foci increase in size, several within a gland merging with each other, and as in any other form of tuberculosis undergoing caseation. In the more severe pyogenic infections foci of suppuration appear, and result in prompt destruction of the affected lymph nodes. In either case, as the glands break down the periglandular tissues become inflamed. The infected glands are no longer discrete, their outlines are ill defined, they become adherent to each other and to all the adjacent tissues. The abscess which has formed increases in size, spreading along the lines of least resistance until the skin is reached. This finally breaks down and the abscess is drained. The slow undermining of the skin in some tuberculous abscesses is very characteristic.

As the disease in the glands increases fresh glands become involved. This may be a result of secondary infection from the glands already involved. It may also be due to direct infection from the original source of the trouble. When the lymphatic circulation is disturbed by disease in the regular channels the free anastomosis between the vessels allows infection to be carried to glands outside of the regular area to which one might expect the infection to be confined.

With a tuberculous adenitis in the hyper-

plastic stage complete removal of the primary cause coupled with hygienic treatment will usually produce a cure. In the majority of such cases, if the cause is treated promptly operative interference with the glands is unnecessary.

But how can one tell when the stage of simple hyperplasia is past? How is one to judge when there are definite foci of tuberculosis in the nodes? Three factors must be considered. 1st. The size of the separate glands. 2nd. The duration of the swelling. 3rd. The progress of the swelling. And these three points cannot be considered independently. Glands may swell comparatively suddenly to a large size. There is then frequently a combination of hyperplasia with œdema and hyperemia. The edema and hyperemia usually do not long persist. Their presence is usually indicated by tenderness, which subsides as they disappear. The hyperplasia remains. It never wholly disappears. After the lapse of a few days, or at most weeks, when the absence of tenderness and diminution of the swelling indicate that the element of hyperplasia alone remains, the size of the individual glands is the best indication we have of the probable future course of the disease. A gland measuring half to three-fourths of an inch in diameter, which is not tender, which has persisted for say two months, and which is not gradually subsiding, will probably not subside unless all sources of irritation are removed and aggressive hygienic measures are undertaken. Frequently such glands subside under the old and much despised method of poulticing, which may perhaps better be called the production of passive hyperemia combined with some slight fixation of the parts.

If the individual glands do not under treatment show any signs of diminishing in size the probability that caseation has already occurred or soon will occur is very great. When this probability has arisen the removal of the glands is strongly to be advised. After the caseation has begun nothing whatever can be gained, but much can be lost by delay of radical operative removal of the infected glands. In fact the delay has been too long already.

Without in any way minimizing the value of hygienic treatment or the value of tuberculin or other measures intended to increase the power of resistance, certain fundamental facts of pathology have not been changed by modern methods of treatment. The progress of such cases may be arrested without operation. The encapsulation of the tuberculous foci, the drying up of the contents of such a focus, the deposition of lime salt, are the well known methods by which nature arrests tuberculosis. But such troubles are to be considered as arrested, not cured. Some smouldering fire remains ready to flare up if the proper conditions of trauma, fresh infection or decreased resistance arise. A complete removal of the infected glands before caseation is easy, safe, uncomplicated and *curative*. After caseation has occurred it is often difficult, complicated and possibly not at once curative.

What can be gained by delay: the possibility of arrest or, if a mistake in diagnosis has been made, of cure; the probability of caseation of the entire gland, the spread into the surrounding tissues, with the necessity of surgical intervention under most unsatisfactory conditions, or the tedious natural discharge through a chronic sinus.

The surgeon seldom has an opportunity to excise tuberculous glands too soon. Yet very early in the acute stage of combined inflammation and hyperplasia, whether the infection be tuberculous or pyogenic, operative interference with the glands themselves is the worst possible method of treatment. In tuberculous infections one should wait till the acute inflammatory symptoms have subsided. Then there comes a period of quiescence before resolution or caseation occurs. By observing carefully, but for only a brief period of say a fortnight or less, one must judge whether caseation is going to occur. In the brief interval after the acute inflammatory swelling has subsided and before the glands are broken down there is the time of choice for radical surgical cure.

In pyogenic infections there is no such interval of choice for operating. The glands should be left alone to subside or to suppurate. There is a time honored but erroneous tradition that the application of cold to an inflamed part will tend to prevent suppuration, while the application of heat favors suppuration. In these acutely inflamed lymph nodes nothing favors resolution so much as a good hot old fashioned poultice, unless the process has gone too far, in which case poulticing aids in softening down the infected glands. Thus in any case a poultice does good.

In cases in which the glands have broken down no question is asked by parents more frequently than this—"Is it ready to open yet?" And this question is most pertinent. Excision of diseased glands is unfortunately not always feasible. The periglandular inflammation may be so great as to make it wiser to treat the broken down glands frankly as an abscess. The abscess is surely ready to open if fluctuation can be felt getting into the subcutaneous tissues. It has gone on too long if the skin is involved. But much may be gained by delay if the suppuration is still largely confined to the glandular structure. Unless it is possible to remove all the tissue of a partially broken down gland the letting out of the pus seems to prolong the necessary breaking down of the remaining portions of the gland. Certainly nothing is more slow in healing than a sinus leading into a gland which has been opened just as suppuration was beginning. In a breaking down gland opened prematurely the child is subjected to the fright and pain of frequent dressings, and in the end final healing is longer delayed than it would have

been had nature been let alone a little more, merely being helped out by making an opening to let the pus out through the skin and subcutaneous tissues. It is not uncommon to see such glandular abscesses thus treated heal in two or three days, while those opened very early may not heal for several weeks.

THE MANNER OF INTERFERENCE IN PARTICULAR CASES.

In the acute pyogenic infections which are severe the removal of the primary cause can do little except to stop infection of fresh glands. In cases in which the acute infection arose in the tonsils operation on them in the presence of acute inflammation is dangerous. The general rule of surgery that operative interference in the presence of acute inflammation should not break down or go beyond the barrier nature provides against the infection should be respected.

In the milder pyogenic infections and more especially in tuberculous infections of the tonsillar group of lymphatics when the tonsils are no longer actively inflamed their complete enucleation may often by removing the cause enable the glands to overcome the infection without breaking down under the strain. But in taking advantage of this chance the necessary damage done by the operation may prove a blow which overpowers the already weakened resisting power of the glands. This risk must be taken when there is the practical certainty that without it the continued infection of the glands will overwhelm them. In general the tonsils should be removed or any other primary cause cured as soon as the acute inflammation in them has passed and as soon as the inflammation in the glands is subsiding. When the acute inflammation in the glands has subsided they are better able to withstand the slight strain put upon them by the operative trauma.

What can be done when the glands are so seriously infected that resolution is impossible? If tuberculous and involving a definite group radical excision is always advisable. It is taken for granted that unless the tonsils and adenoids and any other source of infection has been removed such steps are to be taken.

In cases where the trouble is too acute for excision poulticing till a defined abscess has formed and the opening of this abscess is the best treatment. But too long delay is useless and delay is not justifiable if the abscess is extending into the deep tissues of the neck or if the septic absorption is important. But in the presence of a very acute inflammatory swelling of many glands, even if the sepsis is marked, incision will be useless and may do harm unless there is pus or unless the purpose is to relieve the edema in the tissues outside the glands.

As far as is possible the aim should be either to remove glands or to drain an abscess.

In some of the milder cases a few definite glands are involved to the exclusion of the other lymphatics. In such cases one of two things may occur. There may be a definite encysting of a mass of caseous material, or there may be the formation of a cold abscess in the tissues around the glands which are involved. The pus tends to work toward the surface, and it is definitely walled off, partly by an inflammatory zone, partly by a definite fibrous wall. Where a definite cyst has been formed within the gland capsule it is practically always possible to remove the caseous material in its sac, and in these cases there is no danger whatever of the spread of the infection to neighboring parts. When there is a definite abscess this may be opened and the pus drained.

If nothing further is done it is often found that the sinus which remains is very slow in healing. This is due to the fact that a few adjacent glands which are involved remain behind in a condition of greater or less necrosis and caseation. Very frequently it is found that these glands lie under the deep cervical fascia, directly under the anterior edge of the sternomastoid muscle, that the pus has perforated through a small opening in the deep cervical fascia and has formed a local abscess in the subcutaneous tissues outside the deep fascia.

It is frequently possible to clean the abscess cavity and then to enlarge the opening through the fascia, and in this manner to curette out the group of breaking down and caseous glands. If this is done carefully and thoroughly it is possible to save weeks if not months in the ultimate healing of the sinus.

The most difficult cases to treat are those in which there are widespread infections involving most of the glands on one or not infrequently on both sides of the neck. In these cases there is usually marked impairment of the general health. Tuberculosis may or may not show itself in other parts of the body. It is usually found in such cases that there is a continuing source of reinfection. It is also found that what was originally a secondary infection has become a source of infection of other glands and possibly a source for the spread of infection to other parts of the body. In such cases the glands are usually found to be in different stages of breaking down. Some show simple hyperplasia, others beginning caseation within the glands, others caseation of the gland with rupture through the capsule of the glands, and in others there may be large abscesses involving practically any of the tissues of the neck. In such cases almost all the glands are adherent to the adjacent tissues.

It is in these cases that the general condition of the patient is of the utmost importance. Hygienic treatment plays a most important part. Surgical interference in such cases ought to be either very conservative or very radical. In cases in which there is involvement of the lungs or kidneys or of the other organs surgical interference should ordinarily be confined to simply opening abscesses. But even if the organs of the body are infected, and still the general health is

good, then very radical treatment may be of the utmost value. A radical removal of all the infected glands may remove the chief source of infection of other parts of the body as well as remove all the diseased tissues.

Many incisions have been devised for the removal of tuberculous glands. When the group of throat glands and those adjacent to them but secondarily infected are involved no incision can be more satisfactory than that made in one of the skin folds of the neck anterior to the sterno-mastoid muscle. Through this incision it is easily possible to remove glands up as high as the angle of the jaw and the mastoid process and downward along the vessels. The glands lying beneath the sterno-mastoid may be easily reached and with care and effort even those behind the sterno-mastoid may be removed. The scar resulting is inconspicuous.

The structure in greatest danger is the spinal accessory nerve. With very few exceptions the group of enlarged throat glands completely surround the nerve just before it enters the sterno-mastoid muscle. Therefore the removal of these glands in one mass is not justifiable. The nerves running forward to the corner of the mouth are liable to injury if the inflamed glands lie up about the angle of the jaw. Injury to vessels if care be used is much less to be feared than injury to nerves.

Complete dissection with the removal of all the cellular tissues is of much less importance than was formerly supposed. The removal of this tissue in which the lymph vessels ran was formerly urged as important to prevent recurrence of tuberculosis. Absolutely clean removal of the sources of reinfection will much more surely prevent recurrence.

The x-ray is of value in some conditions. When the skin is involved by the tuberculosis the x-ray is distinctly curative and is by all means the best method of treatment. With sinus formation the x-ray is helpful; the more so the more superficial the sinus. With deep tuberculous glands under sound skin the x-ray ought not to be used. Other methods of treatment are infinitely preferable.

Syphilitic glands have purposely not been mentioned. The conditions under which these are seen in children vary but little from those seen in adults.

Cases of lympho-sarcoma and of Hodgkins' disease are not uncommon among children. The characteristic point about these glands is that no matter what the size of the individual gland it is always essentially of the same consistency, whereas a tuberculous gland persisting for any length of time and over three-quarters of an inch in diameter practically surely becomes caseous. The wide spread distribution of the glands is another characteristic point.

In conclusion certain points may be emphasized.

Cervical adenitis is always a secondary complication.

Prompt removal of the primary cause, if this is possible, is by far the best method of cure of the adenitis.

In those cases in which the glands themselves have broken down hygienic and medical treatment cannot alter pathological facts.

Surgical treatment determined by the existing conditions is of the utmost importance, while hygienic and medical treatment are useful aids which should not be neglected, but which should not assume undue importance.

MIDWIVES IN MASSACHUSETTS.*

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THE fact that many midwives are practicing in Massachusetts in defiance of the law was uncovered in 1909 by an investigation relative to the prevalence of ophthalmia neonatorum. To find out as nearly as possible how many of these practitioners there are and how well they are qualified for their practice, the "Commmittee on Birth Returns and Midwives of the Boston 1915" instituted an investigation. The following is a study of the results of this investigation together with some closely related data obtained by the Research Department, Boston School for Social Workers supported by the Russell Sage Foundation. These data concern the association of physicians and midwives in Boston and are of interest in the light of recent legislation.

The investigation carried on by the "Committee of Boston 1915" employed trained workers acting under the advice of a Boston obstetrician. In two cities the facts were collected by other trained workers—in Fall River by the agent for the "Society for the Prevention of Cruelty to Children" and in New Bedford by the agent of "The Children's Aid Society."

The plan of campaign adopted by this committee was to see what cities and towns had a foreign population of sufficient size to make midwife practice probable. The city or town clerks in these communities were then questioned as to the number of birth returns made by midwives and of the presence of midwives in that city or town. Then, with these facts at hand, the investigation went to the cities and towns where the midwives existed in numbers large enough to make the study worth while.

As a result of this undertaking, 104 midwives were interviewed, most of them in their homes, and the following tables are arranged from facts obtained at such interviews.

Besides these 104 midwives found in the cities and towns mentioned below, there were in 1909 some 28 midwives practicing in the cities of Gloucester, Lawrence, Lowell and Worcester, as reported by H. C. Greene.[1]

It is the opinion of the Committee that there

* Reported at the annual meeting of the American Association for the Study and Prevention of Infant Mortality, Cleveland, Ohio, Oct. 4, 1912.

1 Ophth. Neon. in 10 Mass. Cities. Monograph No. 1, Am. Asso. for the Cors. of Vision.

TABLE 1. (1) BOSTON.

Nationality	No. of midw'fs	Age in yrs.					Res. in Am.			Read Write		Speak Eng.		Diploma			Home Conditions		
		30 to 29	30 to 39	40 to 49	50 to 59	60 to 69	1 to 10 yrs.	10 to 20 yrs.	Over 20 yrs.	Yes	No	Yes	No	American	Foreign	None	Good	Fair	Bad
Italian	18	2	6	6	4	0	10	5	3	13	5	2	16	0	11	7	5	10	3
Russian	5	2	1	0	0	2	3	2	0	5	0	4	1	0	4	1	3	2	0
Irish	2	0	0	0	1	1	0	0	2	1	1	2	0	0	0	2	0	2	0
Syrian	1	0	0	1	0	0	1	0	0	1	0	1	0	0	1	0	0	1	0
German	3	0	0	1	2	0	0	0	3	3	0	3	0	1	1	1	3	0	0
Swedish	4	0	0	1	2	1	0	0	4	4	0	4	0	0	4	0	3	1	0
American	2	0	0	2	0	0	0	0	2	2	0	2	0	1	0	1	1	1	0
French	1	0	0	1	0	0	0	0	1	1	0	1	0	0	0	1	1	0	0
	36	4	7	12	9	4	14	7	15	30	6	19	17	2	21	13	16	17	3

TABLE 1. (2) BOSTON.

Nationality	No. of midw'fs	Length of Practice				Attends Normal Cases Only		Uses Antiseptics		Equipment and Cleanliness of Bag				Care of Infant's Eyes and Cord		Atten. to Mothers		Suspected Criminal Practice		Receives and Cares for Cases at Home	
		1 yr. or less	1 to 10 yrs.	10 to 20 yrs.	20 yrs. or more	Yes	No	Yes	No	Good	Bad	Not seen	None	Good	Bad	Yes	No	Yes	No	Yes	No
Italian	18	0	6	9	3	13	5	16	2	11	5	2	0	5	13	6	12	2	16	1	17
Russian	5	1	1	1	2	3	2	4	1	1	1	1	2	2	3	5	0	0	5	0	5
Irish	2	0	0	1	1	1	1	1	1	0	1	0	1	0	2	1	1	0	2	0	2
Syrian	1	0	0	1	0	0	1	0	1	0	0	0	1	1	0	0	1	0	1	0	1
German	3	0	1	1	1	2	1	3	0	1	0	2	0	1	2	0	3	0	3	0	3
Swedish	4	0	0	1	3	1	3	4	0	1	0	3	0	1	3	4	0	1	3	1	3
American	2	0	0	2	0	1	1	2	0	0	0	2	0	0	2	1	1	1	1	0	2
French	1	0	0	1	0	1	0	0	1	0	0	1	0	0	1	1	0	0	1	0	1
	36	1	8	17	10	22	14	30	6	14	7	11	4	10	26	18	18	4	32	2	34

existed in 1910 approximately 150 midwives in more or less active practice in the State of Massachusetts.

The tables herewith are made to correspond with those employed by investigators of the midwife in other cities and states.

I have divided the results obtained into five sets of tables and a general summary. Each set consists of two tables, one pertaining to the personal data concerning the midwife herself, the other relating to her practice. I have grouped the cities in some cases where the number of midwives would otherwise have been insufficient to have made conclusions possible.

As each locality investigated shows many individual characteristics. I shall take up each group and describe in a little more detail the results given in the tables.

In table 2 a few of the columns perhaps need a word or two of explanation. Column 2 might perhaps better read "States she attends normal cases only," as the word of the midwife was not questioned in most of these cases. In column 3 by "the use of antiseptics" is meant the use of corrosive sublimate or lysol or sulpho-naphthol in sufficient strength to be useful. At first glance the "Care of infants' eyes and cord" in column 5 seems an unfortunate grouping, but as it has been employed in the reports of investigators in other cities, I have continued it here. As a matter of fact, there was no instance of a midwife using especial care in the treatment of the cord who did not at the same time use some prophylactic for the eyes. "Attention to mothers" in column 6 I have taken to mean, when negative, nothing more than the attention a physician or an externe from a lying-in-hospital would give to the mother in his post-partum visits, such as changing the pad (and binder if necessary), taking the temperature and pulse and straightening out the bed. The other columns need no explanation.

From a study of these tables we see that half the known midwives in Boston are Italians, who, for the most part, are in the prime of life, the graduates of excellent schools and living in fairly good homes. More than 66% state that they attend only normal cases and many of these notify a physician, with whom they are closely associated, at the onset of labor in each and every case they attend so that he will be ready to give assistance should it be necessary. Additional information, however, shows that some of these well-trained Italian women are practicing medicine in other lines than obstetrics and are open on many counts to violation of the law.

The Italian midwives in Boston charge from $5 to $20 for attendance and very few do more for the mother and baby than can be accomplished in a daily visit of one hour. It is inter-

esting to note that the Italian midwives who have the largest practice, some 150 to 200 cases a year, are for the most part untrained and, by their own admissions and by the testimony of Italian physicians who constantly see these women at work, are shockingly careless. On the other hand, midwives of excellent training and good character, with as near adequate equipment as a midwife can possess, are called for but 30 to 60 cases a year.

Little can be said about the Russian midwives except that they do very little work, nearly all of the five practicing now solely as obstetrical nurses.

The Scandinavian midwives, all well-educated women, deliver some 200 to 250 children every year in Greater Boston, averaging about 55 cases per midwife. They receive $10 to $15 for each case. Unlike most midwives of other nationalities they act in the double capacity of physician and nurse and do much for the comfort of their patients.

TABLE 2. (1) CAMBRIDGE 12, SOMERVILLE 1, CHELSEA 3, BROOKLINE 1.

Nationality	No. of midw'fs	Age in yrs.					Res. in Am.			Read Write		Speak Eng.		Diploma			Home Conditions		
		30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	1 to 10 yrs.	10 to 20 yrs.	Over 20 yrs.	Yes	No	Yes	No	American	Foreign	None	Good	Fair	Bad
Irish	3	0	0	1	0	2	0	0	3	2	1	3	0	0	0	3	0	2	1
Portuguese	3	0	1	1	1	0	1	0	2	2	1	2	1	0	0	3	0	1	2
American	2	0	0	2	0	0	0	0	2	2	0	2	0	0	0	2	0	1	1
Canadian	2	0	0	1	1	0	0	1	1	2	0	2	0	0	0	2	0	1	1
Polish	2	1	0	1	0	0	0	2	0	0	2	2	0	0	0	2	0	0	2
English	1	0	0	1	0	0	0	0	1	1	0	1	0	0	0	1	0	0	1
Scotch	1	0	0	0	0	1	0	0	1	0	1	1	0	0	0	1	0	1	0
Russian	1	0	0	1	0	0	0	1	0	1	0	1	0	0	1	0	1	0	0
Swedish	1	0	0	1	0	0	0	0	1	1	0	1	0	0	1	0	1	0	0
Armenian	1	0	0	0	1	0	0	1	0	1	0	0	1	0	0	1	0	1	0
	17	1	1	9	3	3	1	5	11	12	5	15	2	0	2	15	2	7	8

TABLE 2. (2) CAMBRIDGE 12, SOMERVILLE 1, CHELSEA 3, BROOKLINE 1.

Nationality	No. of midw'fs	Length of Practice				Attends Normal Cases Only		Uses Antiseptics		Equipment and Cleanliness of Bag				Care of Infant's Eyes and Cord		Atten. to Mothers		Suspected Criminal Practice		Receives and Cares for Cases at Home	
		1 yr. or less	1 to 10 yrs.	10 to 20 yrs.	20 yrs. or more	Yes	No	Yes	No	Good	Bad	Not seen	None	Good	Bad	Yes	No	Yes	No	Yes	No
Irish	3	0	1	0	2	3	0	2	1	0	1	0	2	0	3	3	0	0	3	0	3
Portuguese	3	0	1	0	2	2	1	3	0	0	2	0	1	0	3	2	1	0	3	0	3
American	2	0	0	1	1	2	0	2	0	0	1	0	1	0	2	2	0	0	2	0	2
Canadian	2	0	0	0	2	1	1	2	0	0	0	0	2	0	2	2	0	0	2	0	2
Polish	2	0	1	0	1	2	0	0	2	0	0	0	2	0	2	2	0	0	2	0	2
English	1	0	0	0	1	1	0	1	0	0	1	0	0	0	1	1	0	0	1	0	1
Scotch	1	0	0	0	1	1	0	0	1	0	0	0	1	0	1	1	0	0	1	0	1
Russian	1	0	1	0	0	0	1	1	0	0	0	1	0	1	0	1	0	0	1	0	1
Swedish	1	0	0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	1	0	1
Armenian	1	0	0	1	0	1	0	1	0	0	0	0	1	0	1	1	0	0	1	0	1
	17	0	4	2	11	13	4	12	5	0	5	2	10	1	16	16	1	0	17	0	17

Close analysis of these tables shows that most of the women are past middle life, practically without any technical education and living in poor surroundings. Additional information shows that most of them are not professional midwives, many of them working without pay for their friends and neighbors. Only six of the seventeen cared for more than 20 women a year and not one of them for more than 60 cases. The fees averaged about $5, though one well-trained midwife would never take a case for less than $10. According to the statements of physicians familiar with these midwives and their work, most of these women when left to themselves in charge of a case conducted it without the slightest knowledge of the principles of obstetrics and in utter ignorance of the danger involved.

QUINCY, BROCKTON AND LYNN.

These cities are grouped together because the number of midwives in each city is so small, and as these cities are a little too far away to be included in Suburban Boston.

We see from these tables that the few midwives in these cities are for the most part middle aged women or younger, well educated in all save obstetrics and living in comfortable surround-

TABLE 3. (1) QUINCY 5, BROCKTON 3, LYNN 3.

Nationality	No. of midw'fs	Age in yrs.						Res. in Am.			Read Write		Speak Eng.		Diploma			Home Conditions		
		20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	1 to 10 yrs.	10 to 20 yrs.	Over 20 yrs.	Yes	No	Yes	No	American	Foreign	None	Good	Fair	Bad
Finn	4	1	2	0	1	0	0	1	2	1	4	0	3	1	0	1	3	2	2	0
Swedish	2	0	0	2	0	0	0	2	0	0	2	0	1	1	0	2	0	2	0	0
Lithuanian	1	0	1	0	0	0	0	0	0	1	1	0	1	0	1	0	0	1	0	0
Polish	1	0	0	0	1	0	0	0	1	0	1	0	1	0	0	0	1	0	0	1
Irish	1	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	1	1	0	0
Scotch	1	0	0	0	1	0	0	0	1	0	1	0	1	0	0	0	1	1	0	0
Canadian	1	0	0	1	0	0	0	0	0	1	1	0	1	0	0	0	1	1	0	0
	11	1	3	3	3	1	0	3	4	4	11	0	9	2	1	3	7	8	2	1

TABLE 3. (2) QUINCY 5, BROCKTON 3, LYNN 3.

Nationality	No. of midw'fs	Length of Practice				Attends Normal Cases Only		Uses Antiseptics		Equipment and Cleanliness of Bag				Care of Infant's Eyes and Cord		Atten. to Mothers		Suspected Criminal Practice		Receives and Cares for Cases at Home	
		1 yr. or less	1 to 10 yrs.	10 to 20 yrs.	20 yrs. or more	Yes	No	Yes	No	Good	Bad	Not seen	None	Good	Bad	Yes	No	Yes	No	Yes	No
Finn	4	0	3	0	1	4	0	4	0	2	0	1	1	0	4	4	0	0	4	1	3
Swedish	2	0	0	1	1	1	1	2	0	2	0	0	0	1	1	2	0	0	2	0	2
Lithuanian	1	0	1	0	0	1	1	1	0	1	0	0	0	0	1	1	0	0	1	0	1
Polish	1	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0	1
Irish	1	0	0	0	1	1	0	1	0	0	1	0	0	0	1	1	0	0	1	0	1
Scotch	1	0	0	1	0	1	0	1	0	0	0	0	1	0	1	1	0	0	1	1	0
Canadian	1	0	0	1	0	1	0	1	0	1	0	0	0	0	1	1	0	0	1	0	1
	11	0	5	3	3	9	3	11	0	6	2	1	2	1	10	11	0	0	11	2	9

TABLE 4. (1) SPRINGFIELD 8, CHICOPEE 2, HOLYOKE 5.
CITIES OF THE CONNECTICUT RIVER VALLEY.

Nationality	No. of midw'fs	Age in yrs.						Res. in Am.			Read Write		Speak Eng.		Diploma			Home Conditions		
		20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	1 to 10 yrs.	10 to 20 yrs.	Over 20 yrs.	Yes	No	Yes	No	American	Foreign	None	Good	Fair	Bad
Polish	6	1	2	3	0	0	0	6	0	0	6	0	0	6	1	5	0	1	2	3
Italian	5	1	2	0	2	0	0	5	0	0	4	1	2	3	0	4	1	1	3	1
German	2	0	0	2	0	0	0	0	0	2	2	0	2	0	0	1	1	1	0	1
Russian	1	0	0	1	0	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0
Canadian	1	0	0	0	0	0	1	0	0	1	1	0	1	0	0	0	1	0	1	0
	15	2	4	6	2	0	1	11	1	3	14	1	6	9	1	10	4	3	7	5

TABLE 4. (2) SPRINGFIELD 8, CHICOPEE 2, HOLYOKE 5.

Nationality	No. of midw'fs	Length of Practice				Attends Normal Cases Only		Uses Antiseptics		Equipment and Cleanliness of Bag				Care of Infant's Eyes and Cord		Atten. to Mothers		Suspected Criminal Practice		Receives and Cares for Cases at Home	
		1 yr. or less	1 to 10 yrs.	10 to 20 yrs.	20 yrs. or more	Yes	No	Yes	No	Good	Bad	Not seen	None	Good	Bad	Yes	No	Yes	No	Yes	No
Polish	6	0	2	4	0	6	0	6	0	2	4	0	0	0	6	6	0	0	6	0	6
Italian	5	0	1	3	1	5	0	5	0	3	0	2	0	0	5	3	2	0	5	0	5
German	2	0	0	2	0	2	0	2	0	1	0	0	1	1	1	1	1	0	2	0	2
Russian	1	0	0	0	1	1	0	1	0	0	1	0	0	0	1	1	0	0	1	0	1
Canadian	1	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0	1	0	1
	15	0	3	9	3	14	1	14	1	6	5	2	2	1	14	11	4	0	15	0	15

ings. They all render the mothers rather more attention than a physician would give. Additional data shows that at least three of these eleven are really obstetrical nurses who only occasionally take full charge of a case. These women have anywhere from less than 10 to about 60 cases a year and receive from $3 a case to $15 a week for their services.

Examination of these tables shows that these industrial centres of Western Massachusetts have a moderate number of midwives for the most part from 30 to 50 years of age, well educated (two-thirds of them holding diplomas from foreign schools), living in fair surroundings and giving the mothers rather more attention than they would receive from a physician alone. Additional data shows that these women are doing a large practice, eleven stating that they delivered 50 or more cases a year, five of them delivering over 100 and one of these 300 cases a year. They are paid from $2 to over $10 for their services. The Italian women are probably as a class the best trained, but many of them are practicing medicine in other branches than obstetrics, according to the statements of physicians familiar with the work of these midwives.

TABLE 5. (1) FALL RIVER AND NEW BEDFORD.

Fall River.

Nationality	No. of midw'ls	Age in yrs.						Res. in Am.			Read Write		Speak Eng.		Diploma			Home Conditions		
		20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	1 to 10 yrs.	10 to 20 yrs.	Over 20 yrs.	Yes	No	Yes	No	American	Foreign	None	Good	Fair	Bad
Portuguese	4				1				2	1				4	0	0	4	0	1	3
Irish	2					1		0	0	2			2	0	0	0	2	2	0	0
American	2												2	0	0	0	2	1	1	0
English	2				1					2	1		2		0	0	2	0	2	0
Italian	1								1				1		0	0	1	0	1	0
Russian	1									1								1	0	0
Polish	1										1			1	0	1	0	1	0	0
	13				2	1		0	3	6	2		7	5	0	1	11	5	5	3
New Bedford.																				
Portuguese	4	0	0	2	2	0	0	0	0	4	1	3	4	0	0	0	4	3	0	1
Polish	3	0	0	0	1	1	1	0	3	0	0	3	1	2	0	1	2	2	0	1
Russian	1	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	1	0	0	1
American	1	0	0	0	1	0	0	0	0	1	1	0	1	0	0	0	1	1	0	0
American (Colored)	1	0	0	0	0	0	1	0	0	1	1	0	1	0	0	0	1	0	0	1
English	1	0	0	1	0	0	0	0	0	1	1	0	1	0	0	0	1	0	1	0
Scotch	1	0	0	0	1	0	0	0	1	0	0	1	1	0	0	0	1			
	12	0	0	3	5	2	2	0	5	7	5	7	9	3	0	1	11	6	1	4

TABLE 5. (2) FALL RIVER AND NEW BEDFORD.

Fall River.

Nationality	No. of midw'ls	Length of Practice				Attends Normal Cases Only		Uses Antiseptics		Equipment and Cleanliness of Bag				Care of Infant's Eyes and Cord		Atten. to Mothers		Suspected Criminal Practice		Receives and Cares for Cases at Home	
		1 yr. or less	1 to 10 yrs.	10 to 20 yrs.	20 yrs. or more	Yes	No	Yes	No	Good	Bad	Not seen	None	Good	Bad	Yes	No	Yes	No	Yes	No
Portuguese	4				1		2		3					0	4						
Irish	2	0	0	1	1									0	2						
American	2	0	0	2	0			1						0	2						
English	2	0	0	1	1	1		2	0	1	0	1	0	0	2						
Italian	1	0	1	0	1																
Russian	1	0	0	0	1			1	0					1	0						
Polish	1	0	0	1	0									0	1						
	13	0	1	5	5	1	2	4	3	1	0	1	0	1	11	—	—	—	—	—	—
New Bedford																					
Portuguese	4	0	1	1	2	4	0	3	1	0	0	3	1	0	4	4	0	1	3	0	4
Polish	3	0	0	1	2	3	0	2	1					0	3	3	0	0	3	0	3
Russian	1	0	0	0	1	1	0	1	0					0	1	1	0	0	1	0	1
American	1	0	0	0	1	1	0	0	0					0	1	1	0	0	1	0	1
American (Col).	1	0	0	0	1	1	0	1	1					0	1	1	0	0	1	0	1
English	1	0	0	1	0	1	0	1	0					0	1	1	0	0	1	1	0
Scotch	1	0	0	0	1	1	0	1	0					0	1	1	0	0	1	0	1
	12	0	1	3	8	12	0	9	3	0	0	3	1	0	12	12	0	1	11	1	11

TABLE 6. (1) GENERAL SUMMARY.

City	No. of midw'fs	Age in yrs.					Res. in Am.			Read Write		Speak Eng.		Diploma			Home Conditions		
		20 to 29	30 to 39	40 to 49	50 to 59	60 yrs. or more	1 to 10 yrs.	10 to 20 yrs.	Over 20 yrs.	Yes	No	Yes	No	American	Foreign	None	Good	Fair	Bad
Boston	36	4	7	12	9	4	14	7	15	30	6	19	17	2	21	13	16	17	3
Cambridge, etc.	17		1	1	9	6	1	5	11	12	5	15	2		2	15	2	7	8
Quincy, etc.	11	1	3	3	3	1	3	4	4	11	0	9	2	1	3	7	8	2	1
Springfield, etc.	15	2	4	6	2	1	11	1	3	14	1	6	9	1	10	4	3	7	5
Fall River	13				2	1		3	6	2		7	5		1	11	5	5	3
New Bedford	12			3	5	4	0	5	7	5	7	9	3	0	1	11	6	1	4
	104	7	15	25	30	17	29	25	46	74	19	65	38	4	38	61	40	39	24

TABLE 6. (2) GENERAL SUMMARY.

City	No. of midw'fs	Length of Practice				Attends Normal Cases Only		Uses Antiseptics		Equipment and Cleanliness of Bag				Care of Infant's Eyes and Cord		Atten. to Mothers		Suspected Criminal Practice		Receives and Cares for Cases at Home	
		1 yr. or less	1 to 10 yrs.	10 to 20 yrs.	20 yrs. or more	Yes	No	Yes	No	Good	Bad	Not seen	None	Good	Bad	Yes	No	Yes	No	Yes	No
Boston	36	1	8	17	10	22	14	30	6	14	7	11	4	10	26	18	18	4	32	2	34
Cambridge, etc	17		4	2	11	13	4	12	4	0	5	2	10	1	16	16	1	0	17	0	17
Quincy, etc	11		5	3	3	8	3	11	0	6	2	1	2	1	10	11	0	0	11	2	9
Springfield, etc.	15		3	9	3	14	1	14	1	6	5	2	2	1	14	11	4	0	15	0	15
Fall River	13		1	5	4	1	2	4	3	1	0	1	0	1	11						
New Bedford	12		1	3	8	12	0	9	3	0	0	3	1	0	12	12	0	1	11	1	11
	104	1	22	39	39	70	24	80	17	27	19	20	19	14	89	68	23	5	86	5	86

As can be seen, the investigation in Fall River was not carried out as fully as in other cities and is chiefly of value in showing the number of midwives engaged in practice. In New Bedford we find twelve women all over 40 years of age and three-fourths af them over 50 years of age, more than half of them illiterate and all but one without any obstetrical education. All of these women rendered rather more service to the mother than would have been given by a physician. Additional information showed that only five of these women were caring for more than 50 cases a year, while only three cared for 150 as a maximum. Their fees ranged from $2 a case to $10 a week.

Looking at the general summary of all these tables we see that in the year 1910 there were 104 women more or less actively engaged in the practice of obstetries without the degree of doctor of medicine. Of these 104 midwives at least 10% were in reality obstetrical nurses who only occasionally assumed charge of the actual delivery of patients in labor.

We see that a large proportion of these women are over 40 years old. Comparatively speaking very few are illiterate. Over 35% of these women are well educated. Less than 25% of all these women are living in bad surroundings.

Nearly 25% of the midwives in Massachusetts admitted that they cared for abnormal cases. Only 14 midwives used proper prophylactic care in the treatment of the eyes of the new born.

Sixty-eight of the midwives gave more attention to the mother than would be given by a physician but we must remember that at least 10% of these 104 midwives are essentially obstetrical nurses and only pretend to act as midwives in emergencies where the physician having been called has failed to arrive. Only 5% of these midwives investigated were suspected of undertaking abortions.

One fact was obtained very early from this investigation and that was that many midwives were closely associated with physicians and that particularly in Boston the birth returns were usually made by the physicians and not by the midwife.

Acting upon this suggestion an investigation was undertaken by the School for Social Workers.

This was based upon birth returns made in 1910 and investigated in three Wards in Boston.

Table 7 becomes of considerable interest in the light of recent legislation for whatever interpretation could have been put upon the action of these physicians in the past, at the present time they must by law signify on each and every birth return whether or not they personally attended the birth.

As a matter of fact this action on the part of the physicians has probably not been considered as in any way improper because according to the data furnished by the School for Social Workers at least three of the physicians in the above table who signed birth returns for midwives on cases they had never attended are Fellows of The Massachusetts Medical Society.

TABLE 7.

Showing presence at confinement of doctors who signed Birth Certificates in 1910, in Wards A, AA and AAA.

Birth Certificate Signed by	Total for which information about presence of doctor was obtained	Doctor alone present at confinement	Doctor and midwife present at confinement	Midwife present at confinement; doctor came afterward	Midwife present at confinement; doctor did not come at all
WARD A					
Attendance from Institution Y	99	99	0	0	0
Attendance from Institution Z	64	63	1	0	0
Dr. 1	94	10	14	17	53
Dr. 2	78	3	20	39	16
Dr. 3	56	3	15	26	12
Dr. 4	13	1	0	7	5
Dr. 5	13	0	1	2	10
Dr. 6	11	1	2	4	4
Dr. 7	16	1	3	6	6
Dr. 8	18	8	3	3	4
Dr. 9	18	1	3	8	6
Miscellaneous Physicians Resident in Ward A	55	17	12	17	9
Miscellaneous Non-resident Physicians	48	41	3	2	2
Collected by canvassers and signed xxx, or signed by midwives	47	0	0	0	47
WARD AA	630	248	77	131	174
Miscellaneous Physicians	570	566	1	0	3
Collected by canvassers and signed xxx, or signed by midwives	13				13
	583	566	1	0	16
WARD AAA					
Miscellaneous Physicians	477	472	4		1
Collected by canvassers and signed xxx, or signed by midwife	1				1
	478	472	4		2

Clinical Department.

CHRONIC INVAGINATION OF THE ILEUM, SECONDARY TO A LIPOMA OF THE INTESTINAL WALL.*

BY HARRY W. GOODALL, M.D., BOSTON.

THERE are two reasons for reporting the following case:—

1. Lipomata of the intestinal wall are rare.
2. The clinical signs and symptoms arising therefrom are those of chronic invagination of the intestine.

Dewis in 1906 (BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clv, No. 16, pp. 427-433) reviewed the literature of intestinal lipomata and found but 44 cases reported. The situation of the tumors in these cases was as follows: duodenum 6, jejunum 4, ileum 7, cecum and colon 5, sigmoid 5, rectum 6, small intestine 2, intestines 1, unknown 6.

The rarity of intestinal lipomata is, however, of secondary importance in this case as the symptoms were those of chronic invagination, the recognition of which lead to the proper treatment and the final cure. It is of interest to note that 16 of these reported cases of lipomata caused an invagination of the intestine; whether or not the remaining cases presented symptoms of invagination I am unable to say.

In 1910 (BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxii, pp. 445-452, 491-499) the writer reported a case of Chronic Primary Intussusception in an adult and reviewed the literature up to that time. In that paper the following points were emphasized:

1. That a chronic intussusception may be
   a. Primary.
   b. Secondary, to malignant or non-malignant disease.
2. That the clinical course regardless of the cause is often suggestive of malignant disease.
3. That the diagnosis is rarely made before operation or death, owing to the unfamiliarity with the clinical history and findings.
4. That the clinical history in the majority of cases is alone sufficient evidence for making a diagnosis.
5. The history combined with typical tumor findings allow a positive diagnosis to be made.
6. That resection of the bowel offers a cure and should be attended with a low mortality.

This case is reported in detail as it presents many of the clinical signs and symptoms which are fully described in the previous paper.

* I am indebted to Dr. Thomas Ordway of the Huntington Hospital for the photographs.

Clergyman, 49 years of age. First seen at hospital Feb. 14, 1911.

Family History.—Father died at 61 years of age of some intestinal trouble which was considered tubercular. Otherwise unimportant.

Past History.—Always well and robust. Phlegmatic disposition. No previous digestive trouble and bowels always regular.

Present Illness.—About the middle of August, 1910, had a violent attack of diarrhea, without known cause, which lasted two or three days; then the bowels became normal again but he complained of constant soreness about the umbilicus, of lack of energy and general weakness up to the middle of September, 1910, when he had a second violent attack of diarrhea during the night. The next morning he took castor oil and in twelve hours the diarrhea had ceased. Following this he went three days without any movement. From this time on he had *marked constipation* and *frequent attacks of abdominal pain.* These attacks he describes as follows: At first there is a sensation of uneasiness across the upper half of the abdomen, and in about thirty minutes cramps begin, usually in the right hypogastrium radiating to the left hypogastrium. These last from 15 *to* 30 *seconds*, then there is a *gurgling, rumbling sound "as though something was being pressed through the bowel."* Then he would be free from pain for a few seconds and the cramps would recur, gradually increasing in severity; the entire attack lasting from 4 to 6 hours, then disappearing suddenly, usually when the bowels moved. Pressure on the abdomen relieved slightly but there was considerable soreness in the epigastrium. *Mental depression* was pronounced in all attacks. Attacks were always associated with *constipation*, and relieved when the bowels moved. Cathartics and ingestion of food or water did not aggravate the pains. After the attack passed away he became cheerful. Soreness in abdomen passed away gradually, and he did his work in the usual manner.

December 22, 1910. A few hours after a hearty meal he had a very severe attack of "stoppage of the bowels." Pains of the same general character, but very intense, seized him suddenly. With this attack he noticed for the first time a distinct *bulging of the abdomen* on the left, just above the umbilicus, and could feel *"a lump as hard as a rock which felt as if the intestines were knotted up."* After two or three hours of intense suffering he *vomited* and the pain became much less severe. Took cathartics and enemas without result. The cramps and constipation continued until the night of the 24th, when as a last resort he began to knead the mass with his hands, using very firm pressure. While he was doing this he noticed the mass *change in size and consistency, getting larger and smaller, harder and softer.* His opinion was that the bowel was twisted. *Suddenly*, during this manipulation, the *"lump gave away" with a gurgling and rumbling of gas and liquid in the bowels, and there was immediate relief of pain*, the bowels moving shortly after. The soreness in the abdomen persisted for a few hours. During this attack his face looked greyish green, and there was extreme mental depression.

Following this attack he found if he took two A.S. and B. pills every night (a dose large enough to get loose bowel movements) he was free from these attacks. This he persisted in until the spring of 1911, then thinking he was getting to depend upon pills he took salines, and the attacks returned at frequent intervals. These later attacks were of the same general character, and it is only important to state that he vomited constantly and that at times he thought the *vomitus contained intestinal contents.* Furthermore, *the "lump" did not always appear at the same place;* sometimes it was in the right hypogastrium, sometimes in the left, and again near the navel, and at all times was freely movable as he felt of it. His weight at the beginning of his illness was 192 pounds, present weight 182 pounds. At no time was the temperature found above normal.

Physical Examination. — Well developed and nourished. Color good. Tongue clean. No glandular enlargement. Pupils and reflexes normal. Heart and lungs normal. Abdomen soft, tympanitic, slightly sensitive to pressure in region of umbilicus, especially on the left. Percussion outline of stomach normal. Liver dullness from 5th rib to costal margin, edge not palpable.

Rectum negative.

Blood, Hgb. 95 per cent. Reds 4,200,000; whites 6000. Stained specimen negative.

Urine negative.

Feces showed nothing abnormal. Guaiac test for blood, negative.

A chronic invagination of the intestine was suspected and an exploratory laparotomy advised. The patient did not care to consider operation and returned home.

July 19, 1911. Returned to hospital because attacks of pain persist, but much less severe as he pays more attention to bowels. Gets along best with a coarse diet: graham bread, prunes, etc., together with olive oil. Mental depression still marked and interferes with his work.

At this time an Ewald test breakfast was given; 80 cc. contents were removed at the end of an hour. Free HCl 0.02 per cent. Total acidity 0.12 per cent. Sediment negative. No evidence of stasis. Guaiac test for blood, negative. Stomach held 800 cc. of water. After washing the stomach it was inflated with air, lower border of tympany 1½ inches above umbilicus.

While inflating stomach patient suddenly complained of abdominal cramps, "the knotting sensation" and felt the lump, all of which was similar to the condition he had experienced in some of his previous attacks.

Examination of the abdomen at this time revealed a sausage shaped mass 4 inches long, extending from the region of the spleen towards the umbilicus. With palpation it was firm, with well defined margins, movable and with manipulation showed variation in shape and size, and consistency. There were no visible peristaltic waves. After about 20 minutes it suddenly disappeared with a gurgling sound.

At this time the weight was 153 pounds (a loss of 39 pounds in 11 months).

At this time the diagnosis of chronic invagination was made, and again operation advised but refused.

February 2, 1912. Returned. Condition much the same. Thoroughly discouraged and ready to have an exploratory operation if it seemed advisable. At this time he was referred to Dr. Percy Brown for Roentgen examinations. After a bismuth meal eight exposures were made during the following 32 hours. The result of these plates is summarized as follows:—

Stomach normal, completely evacuated, and the bulk of the meal contained within the ileum in four hours. Seven hours after ingestion the cecum and colon is filled well up towards the splenic flexure, a certain small portion of the bolus still in the ileum. Twenty-four hours after ingestion the bolus head had reached the splenic flexure but no passage of any bulk of the meal had passed beyond the beginning of the descending colon. From this time on the plates showed an area not far from the region of the spleen and possibly a little below it where the passage was delayed; this is still evident at the end of thirty-two hours, when only a small portion of the bolus has passed into the descendidng colon. This suggested an intrinsic or extrinsic obstruction.

February 7, 1912. Operation by Dr. D. F. Jones. Left rectus incision about opposite the umbilicus. Large intestine normal. A mass 5 cm. in length was felt to the right and just below the umbilicus. This was brought out on the abdominal wall and appeared to be an invagination of the ileum about 15 cm. in length, the intestine being constricted at the proximal point and so firmly adherent that it could not be reduced. (Fig. I.) The mesentery for 5 or 6 inches along the intestine was thickened and board like, covered with cicatrices, mostly old, a few comparatively recent. The peritoneum was much thickened over this whole portion of the bowel. The walls of the intestines above the mass were hypertrophied and the bowel dilated to about 8 cm. in diameter. Below the mass there was hypertrophy but not as marked. With manipulation the mass could be readily invaginated in either direction. Twenty-five cm. of bowel together with the thickened mesentery was resected and the ends brought together with a line of Cornell sutures and a few intestinal Lembert sutures. Recovery was uneventful.

Pathological Report.—Department of Pathology, Harvard Medical School, No. H12-148. Examination of the excised bowel before section was made confirmed the findings at operation, suggesting an invagination of the bowel and its mesentery. A sagittal section was made (Fig. II.) and disclosed in the lumen of the bowel within the tumor mass, a pedunculated lipoma nearly filling the lumen. Opposite this the wall of the bowel and the mesentery had become invaginated and firmly adherent, leaving a tortuous lumen about 5 cm. in length, which would only admit a small sized lead pencil.

The condition was due to a lipoma of the intestinal wall producing constriction and invagination at the point of attachment with hypertrophy of the mucosa and dilatation of the bowel above and below.

The patient was last seen July 10, 1912. Aside from the fact that there was a little more gas than normal in the bowels (which caused no pain) and pruritus ani which he has had for some years, he was perfectly well, the bowels regular, working with his usual vigor and enthusiasm. Weight in light clothing, 182 pounds.

The pathological findings suggest the following sequence of events. As soon as the lipoma was of sufficient size to interfere with the passage of the intestinal contents a small portion of the intestine and its mesentery became invaginated and firmly adherent, leaving such a very small lumen that only liquid contents could pass through. The moment there was any interference with this passage the entire mass became invaginated into the bowel below or above, according to the direction of the peristaltic waves. The reduction of this secondary invagination was accompanied with sudden relief of symptoms.

Differential Diagnosis. During the twenty months of his illness he consulted several physicians and according to the patient's story the following diagnoses were made—constipation, intestinal indigestion, nervous indigestion, gastroptosis with gastrectasis, and malignant disease of the intestine.

In the first three instances the diagnosis of a functional disturbance was undoubtedly made because he was a robust man with an entirely negative physical examination, the mental depression suggesting a nervous origin. The fourth opinion was given presumably because at the time the examination was made there was considerable splashing in the epigastrium with palpation and he gave a history of vomiting large amounts of stomach contents. The last diagnosis because of the age, the persistence of the symptoms and the loss of weight.

The evidence upon which a diagnosis is to be made is fully described in the previous communication and it is only necessary here to call attention to the fact that the particular features which make the diagnosis certain are emphasized in the history.

If the patient's own observations of the tumor mass during the attack in December, 1910, and in subsequent attacks could have been confirmed, as they were in July, 1911, the diagnosis would have been made much sooner.

There is no way in which one can determine whether an invagination of the ileum is primary or secondary unless pieces of tumors are passed by the bowel. When the large bowel is involved the tumor can sometimes be felt or seen in the rectum.

Location of the Invagination. At first the invagination was located in the small intestine because of the fact that the mass appeared in different parts of the abdomen, frequently near the umbilicus; whereas in invagination of the large intestine the mass is usually felt somewhere along the course of the colon and is less movable than is the case of the enteric variety.

Constipation is the rule with involvement of the ileum and diarrhea in the case of the ileocecal invagination (the most frequent variety).

The Roentgen examination, however, was so suggestive of obstruction at the splenic flexure of the colon, and the fact that the bolus passed through the ileum normally, made the conclusion of a colic involvement more probable.

There seems to be no satisfactory explanation of the x-ray findings at the splenic flexure. The question of the mass pressing on the colon at this point seems improbable as there was no pain suggesting obstruction at the time and there was no unusual peristalsis of the transverse colon.

One is therefore forced to consider the x-ray

as one of the aids in diagnosis of invagination which does not permit of too definite conclusions.

In conclusion two points are to be emphasized.

1. It is necessary that one be entirely familiar with the clinical story as often the important features are only brought out by direct questions.

2. That in all chronic abdominal diseases this condition should be excluded before a hopeless prognosis is given, and the disease allowed to run its natural course.

Reports of Societies.

THE AMERICAN DERMATOLOGICAL ASSOCIATION.

CHRONIC INVAGINATION OF THE ILEUM.—GOODALL.



Fig. 1.

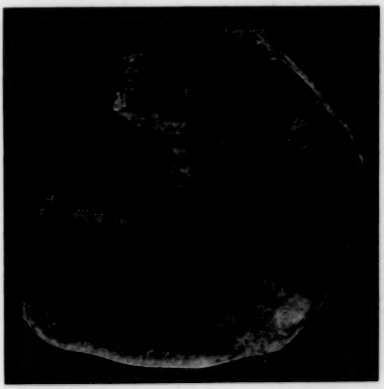


Fig. 2.

at present that Unna's conclusions were more securely founded. The watery suspensions of sulphur, as ordinarily prescribed and prepared, must be regarded as of little value, for sulphur was insoluble in water, and sulphur, as such, was practically inert. Measured by our theoretical standard, liquor calcis sulphurata was to be regarded as the most efficient sulphur lotion.

A CASE OF SO-CALLED PRURIGO NODULARIS.

Dr. Joseph Zeisler, of Chicago, reported this case and showed the patient. He said the term prurigo nodularis had been selected by Hyde in the last edition of his treatise on skin diseases for a rather unique dermatosis which he described on the basis of but four observations, one of them his own. Of the others, one was published in 1880 by Hardaway in the *Archives of Dermatology* under the title "A Case of Multiple Tumors of the Skin Accompanied by Intense Pruritus." The other two cases formed the subject of a communication by Schamberg and Hirschler in the *Journal of Cutaneous Diseases*, April, 1906, under the heading, "Two Cases of Multiple Tumors of the Skin in Negroes, Associated with Itching." There was a striking similarity in these four cases. All of them concerned women in middle life; in all the lesions varied in size from a small pea to a hazel nut; they were located chiefly on the extremities and gave rise to intense itching. Having once become established, they showed little tendency to either further development or involution, and remained thus unchanged for years, uninfluenced by treatment.

CONCERNING EPITHELIOMA OF THE LIP.

[illegible] plete, 35 had an epithelioma of the lower lip; three of the upper. Twenty-eight of these patients were living and free from epithelioma of the lip or metastases arising therefrom in January, 1912. Four were well when last heard from, from three to seven years after their treatment. Four had died from other causes. Two were failures: the disease spread to the glands beneath the jaw and caused death. Two of the patients had lived nine years without a recurrence; seven had lived eight years or more; seven had lived seven years or more; five had lived six years or more; two had lived five years or more; five had lived four years or more and eight had lived three years or more. The mean average interval which had elapsed since treatment in the 36 cases was six years. Dr. Pusey said he was willing to treat any epithelioma of the skin with the x-rays,

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Reports of Societies.

THE AMERICAN DERMATOLOGICAL ASSOCIATION.

THIRTY-SIXTH ANNUAL MEETING, HELD AT THE BARNARD FREE SKIN AND CANCER HOSPITAL, ST. LOUIS, MO., MAY 23, 24, AND 25, 1912.

The President, DR. GROVER W. WENDE, of Buffalo in the Chair.

(*Concluded from No. 15, page 516.*)

AN INQUIRY INTO THE EFFICIENCY OF SULPHUR LOTIONS.

DR. O. H. FOERSTER, of Milwaukee, said that in sulphur we empirically recognized one of our most valuable dermatologic remedies for local use, but concerning its mode of action on the skin opinions today were still divided. It was certain that sulphur, as such, in contact with the skin remained practically inert, there being no interchange between sulphur and the keratin of the corneous layer, for both were insoluble. The action of the sulphur must consequently depend upon its conversion into a soluble form or gaseous product. Unna was the first to investigate this question and he concluded that sulphur acted by virtue of the hydrogen sulphide formed. His observations remained current and undisputed until Brisson, in 1909, asserted that the action of sulphur on the skin was due entirely to sulphuric acid formed by oxidation of sulphur. The efficiency of a sulphur preparation, according to Brisson, was therefore directly proportional to the amount of sulphuric acid formed from it by oxidation, while Unna and Golodetz considered its efficiency proportional to the formation of hydrogen sulphide. Further research was required for a definite decision of this question, though it appeared at present that Unna's conclusions were more securely founded. The watery suspensions of sulphur, as ordinarily prescribed and prepared, must be regarded as of little value, for sulphur was insoluble in water, and sulphur, as such, was practically inert. Measured by our theoretical standard, liquor calcis sulphurata was to be regarded as the most efficient sulphur lotion.

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CONCERNING EPITHELIOMA OF THE LIP.

DR. WILLIAM ALLEN PUSEY, of Chicago, in this paper, limited himself to his own experience, giving the records of 44 cases of epithelioma of the lip seen in private practice and treated with the x-rays more than three years previous to January, 1912. In 40 of these cases, all men, the lesion was on the lower lip; four were of the upper lip; of these, three were women and one a man. The youngest patient was 28; the oldest 90. The cases were for the most part selected cases, *i.e.* the lesions were as a rule superficial, not extending deep into the lip, but this statement by no means covered all of the cases, for some were not regarded as favorable and were treated only because an operation was not practicable. The list did not include many cases of extensive carcinoma of the neck following cancer of the lip. In only two cases were glands palpable at the time of beginning treatment, and of course, operation was urged in these cases. One of these was not helped, and presumably died of carcinoma, but the other had been well six years. In another case a gland developed beneath the angle of the jaw after the lesion on the lip had healed; the gland gradually subsided, and the patient, a physician, had been well seven and a half years. The lesions in these cases varied from small, finger-nail size nodular masses, or ulcers with nodular borders and indurated bases, up to ulcers covering nearly the entire lip or tumors the size of an olive. Of these 44 cases, Dr. Pusey said he knew the subsequent history to January, 1912, of all but five, which he would be compelled to deduct from his list, together with one additional case, that patient having died from intestinal obstruction five months after an apparent cure of the lesion on the lip. Of the 38 cases whose subsequent histories were complete, 35 had an epithelioma of the lower lip; three of the upper. Twenty-eight of these patients were living and free from epithelioma of the lip or metastases arising therefrom in January, 1912. Four were well when last heard from, from three to seven years after their treatment. Four had died from other causes. Two were failures: the disease spread to the glands beneath the jaw and caused death. Two of the patients had lived nine years without a recurrence; seven had lived eight years or more; seven had lived seven years or more; five had lived six years or more; two had lived five years or more; five had lived four years or more and eight had lived three years or more. The mean average interval which had elapsed since treatment in the 36 cases was six years. Dr. Pusey said he was willing to treat any epithelioma of the skin with the x-rays,

provided radical treatment did not require the removal of contiguous glands. After an experience of eleven years, and covering the treatment of several hundred epitheliomas with the x-rays, he felt more convinced than ever that used with attention to technique and with proper regard to their therapeutic indications, the x-ray was one of the most useful or the most useful single agent of treatment in the service of dermatology.

DISCUSSION.

DR. S. POLLITZER, of New York, said he was glad to hear of the excellent results obtained by the author of the paper in this large series of cases of epithelioma of the lip, and that these cures were not temporary, but apparently permanent. At the present time, the tendency was to condemn the use of the x-rays in epithelioma, and resort to the older surgical measures. He was inclined to believe, in view of Dr. Pusey's convincing statistics, that the cause of the failures might be attributed to an inadequate technique in the use of this valuable agent.

DR. JOSEPH GRINDON, of St. Louis, said he had one case of carcinoma of the lower lip well after nine years and six months.

DR. M. B HARTZELL, of Philadelphia, said that on one occasion where he had successfully treated an epithelioma of the lower lip with the x-rays, the surgeons had criticized him mercilessly.

DR. JOSEPH ZEISLER, of Chicago, said Dr. Pusey's paper emphasized the value of a legitimate, conservative and non-surgical method of treatment for an affection which the dermatologist had long regarded as belonging to his field. His own experience with epithelioma of the lip was sufficiently large to enable him to judge that many of these cases could be successfully treated with the x-rays. When, however, the glands beneath the jaw were involved, then he regarded the case as a *noli me tangere* for x-ray treatment. With this limitation, he believed that all forms of epithelioma were proper subjects for either x-ray treatment or refrigeration with carbonic acid snow.

THE CLASSIFICATION AND NOMENCLATURE OF CUTANEOUS SYPHILIS.

DR. GEORGE H. FOX, of New York, stated that in the diagnosis of syphilis, the main point was to recognize the disease. The particular form or variety of eruption was of far less importance, but as this subsidiary diagnosis had often an important bearing upon the stage of the disease, upon the appropriate treatment, and upon the prognosis, it possessed value which was certainly worthy of recognition. Since we were all forced to classify in some manner, and to name the various forms of cutaneous syphilis, was it not possible for us to agree upon the best practical classification, and to be in greater accord with one another in the use of names? To further such a desirable end was the aim of this paper. In describing the various syphilides, most text-book writers, even those with a large experience, were sadly hampered by what their predecessors had written. Their respect for authority and tradition was highly commendable, but it surely was unfortunate when it led them to a parrot-like repetition of terms, and to the description of eruptions which they themselves had never seen. When we considered the common forms of syphilis, with which we were all so familiar, and omitted the rare, unique and exceptional cases, seen scarcely once in a lifetime, did it not seem possible and practicable for the members of the American Dermatological Association to agree upon the use of certain terms, not only for our common convenience, but for the sake of our professional brethren who looked to us for guidance, and particularly that large class in which we were all interested—the future students of dermatology?

DISCUSSION.

DR. JOSEPH GRINDON, of St. Louis, said he was glad that Dr. Fox had emphasized the radical difference between the early and late squamous syphilide. As to rupia, of course there was no such eruption: this was simply a name given to a form of crusting which he had frequently seen in the very early pustular syphilide rather than in the late type.

DR. FRANK C. KNOWLES, of Philadelphia, said that with Dr. Hartzell he had seen one case of unquestioned acquired syphilis in an adult with a vesicular syphilide.

DR. FOX, in closing, said that while, as Dr. Pusey had intimated, it might be difficult to discard terms that had been in use for a long time, still we might begin by teaching our students to substitute the term nodular for tubercular, and gradually improve our dermatological nomenclature.

THE DRY TREATMENT OF CERTAIN MOIST DERMATOSES.

DR. CHARLES J. WHITE, of Boston, said the therapeutic ideas embodied in this paper were not wholly original, as their chief source of inspiration was derived from Dr. M. F. Engman of St. Louis, who advised the liberal use of corn starch powder and the administration of quinine forced to its uttermost limits in the treatment of certain moist dermatoses. In some of the cases reported by Dr. White this advice was followed literally; in others, the internal medication was dropped, and the patients improved quite as rapidly without the unpleasant symptoms often associated with the forced ingestion of quinine. The details of the treatment were as follows: During the acute stages of the disease the patient was put to bed and kept there until all or practically all moist surface had ceased to appear. If there were many lesions upon the dorsal surface of the body, an air mattress was supplied and kept well inflated. All natural functions were carried on in the reclining position, and the patient ate, slept, defecated, urinated and rested in this recumbent position. The food was restricted to soft solids and the abundant ingestion of water; the air of the apartment was kept as fresh as possible; bathing was not allowed; sleep was encouraged; medicines were administered only when special general symptoms demanded them, and the pith of the whole method lay in the external use of a bland, antiseptic, inexpensive powder, pushed to its extreme limit. All these qualities were contained in borated talc, which was the material employed in these cases. The application of the powder was made through a sifter, and every lesion on the body was drenched with this powder as often as any moisture showed itself. If the diseases affected the scalp, the hair should be sacrificed. The patient should lie naked in the bed, and the sheet and blankets should be supported on a frame, so that nothing touched the body but the powder. Dr. White then reported in detail a number of severe cases of pemphigus and dermatitis exfoliativa in which this dry treatment

was used with marked success. In three cases of pemphigus, two were relieved or cured; one died from an intercurrent disease. In six cases of dermatitis exfoliativa, all were relieved or cured. Under the older, miscellaneous methods of treatment employed at the Massachusetts General Hospital in eight cases of pemphigus, five died and three were relieved or cured. In fifteen case of dermatitis exfoliativa, ten died and five were relieved or cured. Upon comparison, Dr. White said, these fissures spoke for themselves, and he expressed the hope that the dry method might be given a trial when the physician was confronted with the serious problem of caring for those afflicted with these serious and often fatal forms of moist dermatoses.

DISCUSSION.

Dr. S. Pollitzer, of New York, thought the most essential element of this method of treatment lay in keeping the patient covered with powder, which cooled the skin and exerted a soothing influence on the nerve ends. It contracted the blood vessels, and acted as a universal antiphlogistic application.

Dr. Martin F. Engman, of St. Louis, said that one objection to this method of treatment was that it rendered the patient very uncomfortable for the first week, on account of the dryness and cracking of the skin. This could be largely alleviated by giving these patients an occasional colloidal or starch bath, with the addition of a little bicarbonate of soda. The bath could be repeated every day or every other day, and then, after the patients had patted themselves dry, the powder could be re-applied. The speaker said he was firmly convinced that the dry treatment gave excellent results in some of these cases.

Dr. O. H. Foerster, of Milwaukee, said he had used this method in a case of generalized exfoliative dermatitis. After the powder had been applied for a short time, the patient was very uncomfortable, owing to the marked "splitting" of the skin. The treatment was persisted in for ten weeks, with complete recovery.

Dr. White, in closing, said that crusting in these cases must be guarded against, because if one left even a single focus of pus in the body, the patient would not get well until this focus was healed. The treatment must be thoroughly carried out in all its details, and this could best be done in a hospital. In his experience, these patients were not rendered very uncomfortable by the treatment, and he was opposed to the use of any moisture on the body.

A RECURRENT ECZEMATOID AFFECTION OF THE HANDS.

Dr. S. Pollitzer, of New York, said that for several years he had been observing a form of dermatitis which was not mentioned in the works on skin diseases and was generally confused with nummular eczema. Yet the disease presented certain features which served, in his opinion, to separate it sharply from eczema and place it, perhaps, in the group of the bullous diseases, making it possibly a form of dermatitis herpetiformis, but of a type so mild and uniform that it deserved special consideration. Briefly, the disease was characterized by the occurrence of pruritic groups of resistant vesicles which entirely and uniformly covered the surface of small, round or elliptical areas on the back of the hands and the sides and back of the lower portion of the forearms. It remained stationary, without extension or confluence or change of outline for several weeks, and then the lesions dried up, desquamated and disappeared, to be followed, after varying intervals, by repeated recurrences of similar character. During the eruption, there was a moderate eosinophilia.

General Discussion: The Etiology of Eczema.
SPECULATIONS AS TO THE CAUSATION OF ECZEMA.

Dr. James C. Johnston, of New York, discussed this phase of the subject, and concluded that by a process of exclusion, the causation of eczema might be narrowed down to a derangement of the nitrogen metabolism, neither anaphylactic nor a defective synthesis of urea, but ocurring where for the moment biochemistry could not demonstrate it. Color was lent to this theory by the appearance in its course of allergic phenomena and urinary evidence desamindation. Perhaps the fault lay in a failure of protein-splitting in the intestinal wall or the blood stream before the tissues selected their store of amino acid nitrogen.

THE EXTERNAL ORIGIN OF ECZEMA, PARTICULARLY THE OCCUPATIONAL ECZEMAS, AS BASED ON A STUDY OF 4,142 CASES.

Dr. Frank C. Knowles, of Philadelphia, offered the following conclusions: 1. Fully one-quarter of all cases of eczema were of definite external origin. Almost one-sixth of all cases of this affection were caused by the occupation of the individual. 2. Micro-organisms were apparently not the cause of eczema, but probably played a secondary rôle in the affection. 3. The largest number of cases of the so-called occupation eczemas were seen in the workers in the household, and next most frequently in laborers. 4. Practically, every occupation and every irritant exclusive of occupation might produce an eczema. 5. The portions of the skin exposed to the irritant determined the site of the outbreak. 6. The eruption not infrequently extended beyond the irritated areas, at times being noted on distant parts of the cutaneous surface. 7. The usual type of eruption noted was the vesicular or the squamous. 8. The eruptions noted in this paper had lasted for weeks, months or years, and showed a marked tendency to relapse. 9. It was rather hard to explain the susceptibility of some individuals to certain irritants, while others were not affected, excepting on the theory of a personal idiosyncrasy, an anaphylactic tendency causing sensitization of the skin. 10. As dermatitis and eczema of external origin had the same clinical and microscopic picture, they should be classed under the heading of dermatitis.

FURTHER DISCUSSION.

Dr. James S. Howe, of Boston, said he had been much interested in the remarks that had been made in regard to sensitization of the skin as a possible factor in these cases. It recalled to his mind the case of a lad who was in the habit of going in swimming in the summer, and then rubbing his body with the leaves of poison-ivy, which apparently had no effect upon him. After discontinuing the practice for a number of years, he repeated it and suffered from a severe dermatitis.

Dr. Pollitzer, said he did not think that eczema was due to internal causes, although the latter might play a rôle in its production through the physio-

logical changes in the condition of the soil. He believed that eczema was due to external irritants, and that there was no real eczema without bacterial action. He thought the eruption was the result of bacterial action upon a soil specially prepared for the organism in some way at present unknown. In the preparation of the soil it was probable that certain external causes, especially disturbances in the vascular system, played a rôle.

DR. PUSEY said that his own working theory, which he had found very satisfactory, was that eczema was a secondary dermatitis. For practical and conventional reasons we separated from eczema various forms of dermatitis, and he saw no objection to calling a certain eruption either an eczema or a dermatitis, providing we kept in mind the fact that the two affections were essentially the same. A dermatitis was an inflammatory process, and as soon as the pathologists could agree upon a universal cause of inflammation, we could agree upon a universal cause for eczema.

DR. GRINDON said he regarded eczema as a peculiar type of inflammation, due to a wide variety of causes and analogous to catarrh of mucous membranes. He did not believe that these eruptions were due solely to an external irritant, because the fact remained that such an external irritant would not produce a lesion in everybody, for the reason that everybody's skin was not sensitized to it. One might handle formalin, for example, for a long time before the skin became sensitized.

DR. ALFRED SCHALEK, of Omaha, said we might continue to discuss interminably whether the causes of eczema were internal or external, but the fact remained that whatever the causative factors were, they were more or less present universally. In spite of this, the majority of people escaped eczema, so that the conclusion was forced upon us that eczematous individuals must have a special vulnerability of the skin, which unquestionably was in many cases inherited.

DR. O. H. FOERSTER, of Milwaukee, said he was firmly convinced that many cases of so-called eczema were really due to external irritants regarding the nature of which we were still ignorant.

DR. HOWARD MORROW, of San Francisco, said that during the past year he had seen two cases of recurrent eczema developing after burns.

DR. E. WOOD RUGGLES, of Rochester, N. Y., mentioned a dermatitis connected with the photographic industry and due to platinum poisoning.

CAN PSORIASIS BE CURED?

DR. A. RAVOGLI, of Cincinnati, said it was unfortunate that so far we had not come to an understanding regarding the nature of the trouble, and that when we were able to establish the cause of psoriasis, we would perhaps be able to treat the disease rationally. With the local application of chrysarobin and other irritating remedies the eruption usually disappeared, but only temporarily, and the irritation produced by these applications often gave rise to a dermatitis, in some cases followed by the recurrence of the psoriatic patches much larger and deeper than before. The same was true after x-ray exposure; the drying up of the epithelial elements caused temporary improvement which was usually followed by the appearance of more stubborn lesions. Personally, Dr. Ravogli said, he had practically abandoned the use of chrysarobin, pyrogallol or tar in these cases, for the reason that they caused too much discomfort to the patient, and he found that in ordinary psoriasis a white precipitate salve gave the best results. He also employed, with good results, subcutaneous injections of a ten per cent. solution of cacodylic acid, repeating the injection two or three times a week. When the internal use of arsenic had no more effect in psoriasis, he turned to potassium iodide. In many cases which had been treated for years with arsenic preparations, chrysarobin, etc., he had obtained brilliant results by giving potassium iodide internally and applying the white precipitate salve locally. Many of his psoriatic patients treated with these remedies had shown no recurrence for years, and had given him the idea that psoriasis was curable.

GRANULOMA INGUINALE TROPICUM. REPORT OF THREE CASES.

DR. JOSEPH GRINDON, of St. Louis, reported three cases of this affection, and offered the following conclusions: 1. The disease was a rare one in this country. 2. It was characterized by a striking conformity to type. 3. The adjective *tropicum*, as a part of the title of this disease, was not wholly justified. 4. The disease in this country was not mainly one of women, as Manson said was the case in the tropics. 5. The negro race was especially liable. 6. The question of contagion must remain open for the present. 7. The peculiar bodies described by Donovan and Carter were not constantly present in this disease. 8. Spirochætæ were not constantly present.

THE NEW ENGLAND PEDIATRIC SOCIETY.

THE TWENTY-FIRST MEETING OF THE NEW ENGLAND PEDIATRIC SOCIETY WAS HELD AT THE BOSTON MEDICAL LIBRARY, ON SATURDAY, MAY 11TH, AT 8.15 P. M. DR. JAMES MARSH JACKSON in the chair.

DR. JAMES S. STONE read a paper entitled,

THE TREATMENT OF ENLARGED CERVICAL GLANDS.*

He took up the anatomy of the various glands of the neck, emphasizing the distribution and the drainage of these groups, and then commented upon the various methods of treatment with special reference to surgical intereference.

DISCUSSION.

DR. T. M. ROTCH: The cases that I have seen have all quieted down without treatment. I have seen no cases where the glands had to be opened.

DR. STONE: Replying to DR. MCCLEAVE. I did not mention removing the tonsils and adenoids because I thought that this is now an accepted procedure everywhere.

DR. MAYNARD LADD: I have seen several cases in which the x-ray has been used and I bring it up as negative experience, since the use of the x-ray has produced no results in any of these cases. These have all been tuberculous cases, as proved by operation afterwards. In my opinion surgical procedure is best in these cases; I have seen a good many cases given tuberculin, x-ray and other forms of treatment for two years or more still having persistent sinuses.

DR. J. M. JACKSON: We have had a great number

* See JOURNAL, p. 537.

of cases of enlarged cervical glands during the winter. During this epidemic it has been amazing to me to see to what tremendous size these glands attained, and yet with very simple treatment, in fact, no treatment, they would finally go down. During the milk epidemic, so-called, in February, I saw something like forty cases with glands in the neck and none of these broke down, which I think was rather important.

DR. STONE: In many of these cases with tuberculous glands, the removal of the glands in the neck removed all the tuberculous infection from the system, but of course in other cases there is tuberculosis elsewhere and those are the difficult cases to decide whether the tuberculosis elsewhere in the body is so great as to render inadvisable the removal of the glands in the neck. On the other hand in many cases the removal of the glands is sufficient to aid in the healing of other tuberculous lesions.

DR. JOHN LOVETT MORSE read a paper entitled,

SOME UNUSUAL CASES OF NARROWING OF THE ESOPHAGUS.

He reported three cases of congenital imperforation of the esophagus. The symptomatology was similar in two cases. The following example was taken: "This baby seemed normal at birth except that there was a considerable amount of mucus in the naso-pharynx. When first put to the breast he at once choked up and the throat seemed to be full of mucus, so much so that the nurse said, 'that the mucus met the milk.' The start of each nursing was the same. He took hold, sucked and swallowed well, but after a minute everything came up. He had the same trouble with water which was given with a dropper. The nurse was sure, however, that he had taken more milk than was vomited up. The stools had consisted entirely of meconium, and he had passed a little urine. He had lost weight and strength. He was seen at five days old. On a physical examination it was found that a number eleven catheter could only be passed 10 cm. into the esophagus. At each opening it met obstruction. There were six other interesting x-ray plates accompanying this paper. (This paper was published in the *Archives of Pediatrics*, vol. xxix, 1912, p. 485.)

DISCUSSION.

DR. T. M. ROTCH: These are very interesting cases. I recall one case, of which I cannot remember all the particulars, in a young baby, on which we had an autopsy. This baby always vomited after taking three or four meals, and the autopsy showed no narrowing of the esophagus but a pouch at one part of it. The greatest care had to be exercized in passing the catheter as almost anything would have ruptured it, and in fact rupture was just about taking place. The baby died of exhaustion. The Roentgen ray was not used at that time. One should be very careful about passing the catheter, and in all cases I strongly advocate the use of the Roentgen ray.

DR. A. W. GEORGE: These cases have brought up some very important points in the study of diseases of the esophagus. In the work which we did we used controls. Nothing seemed to work any better than the ordinary bismuth and water. I have examined about forty cases that were not taken especially for the esophagus which did not show this stasis of bismuth. At the Academy of Medicine in New York last week some of the men claimed that every case that was given bismuth would show this stasis. Out of all of our cases (46) I have had three cases that showed it after five minutes. Dr. Morse's cases illustrate, I think, definitely the value of the Roentgen ray in the study of these conditions. I think that if we examined the cases of so-called difficulty in swallowing we would find a great many more that show these changes, their clinical condition would be better understood and the treatment more explicit.

LANTERN SLIDE OF CASES.

Report of a case of adhesions about the duodenum causing spasm at the cardia and also a case with obstruction of the duodenum, a baby of three days with spasm of the cardia.

DR. WALTER J. DODD read a paper entitled,

MULTIPLE CARTILAGINOUS EXOSTOSIS.

He showed a large number of x-ray plates of the skeletal bones of several members of one family having exostosis.

He mentioned a series of cases in which there were five brothers in one family which showed the same condition and it is very interesting to note how similar those lesions seem to be. It is always the ends of the long bones over the epiphysis although in some places it seems to be the diaphyses. There is nothing one can do if the tumor grows to any extent but to operate. Some cases have been reported in which there was a recurrence, but if the operation is sufficiently thorough and the condition removed I do not think it recurs.

THE MASSACHUSETTS MEDICAL SOCIETY.

Meeting of the Council.

A Stated Meeting of the Council of The Massachusetts Medical Society was held in the Boston Medical Library, October 2, 1912, at 12 o'clock noon, the President being in the chair. There were present sixty-nine Councilors, and at least four Presidents of District Societies.

The records of the last meeting were read and accepted.

The President made the following opening remarks:

Since this is the beginning of a new administration, it may be in order to speak of such matters brought to the attention of your President as may merit your consideration.

Living as we do in an age of progress and also, as we hope, in a process of evolution, new conditions may lead to changes in existing methods and even call for the creation of new plans to provide for the demands of the future.

By reason of the increase in our numbers with many consequent conflicting interests and opinions, and with the complicated relations of our various commitees, together with the desirability of working in accord with the plans of the American Medical Association, there are opportunities for the exercise of great wisdom so that harmony may prevail and our Society perform its duty to all its members.

A careful consideration of the By-laws of our Society seems to indicate that a revision should be

made, for certain of them are obsolete or defective; and since there are not many copies of the present edition left, and a new edition will have to be printed before very long, it would be wise to have this matter assigned to a committee. It may be advisable to consolidate some of the standing committees. The special rules of the Council and the standing votes and resolves should be incorporated so far as possible in the By-laws. A new by-law defining the status of papers read before the Society should be added. It has been suggested that the new code of ethics recently published by the American Medical Association that was submitted to the secretaries of the state societies and revised by competent authorities should be a part of this publication.

It is hoped that you will carefully study this proposition and appoint a committee which shall report recommendations at a future meeting.

To those of you who have served on committees having to spend considerable sums of money, some questions may have arisen as to our present way of dealing with our financial problems. The system now in operation in many instances permits committees to spend money without any official expression of opinion, as to method or amount, by the Council. The satisfactory result of this method so far is a testimonial to the executive and judicious quality of the work of these committees; but it is a method not usually adopted in organizations of this size, and as time goes on, it must be a difficult task for any one committee to be able to determine what is fairly proportionate in the way of expenditure as related to the work of other committees.

The President submits that the only way, fair alike to the Society and to the committees, would be for each committee entrusted with the expenditure of funds above a certain fixed amount to submit its plans and estimates to the Committee on Membership and Finance; then the Committee on Membership and Finance, after reviewing the whole situation, could recommend to the Council the appropriation of such amounts of money as might seem to be required by each committee. In other words, at the beginning of the year, a budget should be prepared and submitted to the Council. This would give each committee an opportunity to defend its claim for funds. Then after the Council had appropriated a definite sum, the committee would be relieved of the possibility of unjust criticism.

A continuance of the methods of the past must lead either to a reduction of the expenditures and reversions to the District Societies, or to an encroachment on the funds of the Society, unless some method can be devised to increase the income. This latter suggestion would not be likely to be received with enthusiasm if it involved a larger yearly assessment.

One plan adopted in recent years has now been on trial sufficiently long to warrant a study of its workings. Reference is made to the act for the defence of suits for malpractice. Every one recognizes the kindly and fraternal spirit which prompted this scheme, and the laudable desire to help carry the burdens of an unfortunate Yellow; but there must rise in the minds of many the question as to the justice and wisdom of using the resources of the Society for the benefit of the few. This matter in the opinion of some should be reconsidered and dealt with in a way to accomplish the greatest good.

Our relations with the American Medical Association are constantly developing important questions of policy, and now there are under consideration plans designed to solidify the component societies of the national body and make them reciprocally helpful. In its proper place in the program there will be a letter read which calls for action.

It may be desirable both by reason of our relations to the American Medical Association as well as the common practice with most business concerns to change the financial year so that it will begin with the calendar year. This should be considered by the committee to be appointed to take under consideration the new By-laws.

Other questions of importance relate to our rules for admission to membership in the Society, so that we shall be in conformity with other similar bodies, to the end that reputable men coming to Massachusetts may join with us without being subjected to any unnecessary annoyance. This would be a comparatively easy thing to adjust if our state laws relating to licensure were better; but even with defective laws, certain changes can be made which will help to bring us into conformity with other states.

Many members have suggested a more complete directory; that is, with a local list added to the alphabetical list, but since there have been doubts expressed as to our ability to provide for larger outlays, it may be best to ask the Committee on Membership and Finance to confer with the Committee on Publications in order to determine whether there are sufficient funds for this purpose.

You may have noticed that the list of Honorary Fellows has been so reduced by deaths that we now have enrolled only two. If this custom is to be perpetuated, it will be necessary for you to bring forward names of such men as are entitled to this distinction.

The Chair would also like to suggest at this time that Councilors confer with the societies which they represent to ascertain the wishes of the members regarding arrangements for the Annual Meeting, and then forward them to the committee having this matter in charge.

The Committee on Publication through Dr. George B. Shattuck announced that the Shattuck Lecturer in 1914 will be Dr. Herbert C. Moffitt of San Francisco.

The Committee on Membership and Finance reported through Dr. Goss, recommending that six Fellows be transferred from one district to another, one retired, and forty deprived of the privileges of fellowship under By-law 7. Upon recommendations by different Councillors, six Fellows were removed from the list of those who were to be deprived.

Voted, To accept the report and adopt its recommendations as amended.

The reports of three committees appointed to consider petitions for reinstatement were accepted by the Council; and the report of one committee which did not recommend restoration of a former member was accepted.

Further, a committee was appointed to consider a petition for reinstatement.

The Secretary read the report of the delegation to the one hundredth anniversary of the Rhode Island Medical Society; and the following were appointed delegates to the Annual Meetings of state medical societies as follows:—

Vermont, Charles L. French, Clinton; N. P. Wood, Northfield.

New York, R. H. Seelye, Springfield; J. B. Thomes, Pittsfield.

The resignation of Dr. F. P. Denny as a member of the Committee to Procure Scientific Papers was accepted, and Dr. F. T. Lord was appointed to fill the vacancy.

Dr. Walter Ela's resignation as a member of the Committee on Membership and Finance was accepted, and Dr. F. W. Taylor appointed in his place.

Dr. G. W. Gay was appointed a member of the Committee on State and National Legislation to fill the vacancy caused by the election of Dr. W. P. Bowers as President of the Society.

Dr. H. D. Arnold made the following report of the delegation to the House of Delegates of the American Medical Association at Atlantic City, June 3-6, 1912.

Report of the Meeting of the House of Delegates of the American Medical Association at Atlantic City, June 3 to 6, 1912.

The Massachusetts Medical Society was represented by a full delegation, consisting of the following six delegates;—F. H. Thompson, Fitchburg; F. G. Wheatley, North Abington; Hugh Cabot, Boston; H. G. Stetson, Greenfield; H. W. Van Allen, Springfield; H. D. Arnold, Boston.

The following Massachusetts men were delegates representing Sections of the American Medical Association;—R. F. O'Neil, Section on Genito-Urinary Diseases; F. A. Washburn, Section on Hospitals.

Thus our Society had eight members on the floor of the House of Delegates. Three served on Reference Committees, as follows;—

Hugh Cabot, Sections and Section Work; H. D. Arnold, Medical Education; H. W. Van Allen, Credentials.

REAPPORTIONMENT

The regular apportionment of delegates once in three years was adopted at this session, on the basis of one delegate for every 700, or fraction thereof, in the membership of the constituent state associations on April 1, 1912. On this basis The Massachusetts Medical Society, with 3342 members, will be entitled to five delegates for the next three years,—a loss of one.

The following statistics are of interest;—

Number of physicians in Massachusetts	5648
Members of The Massachusetts Medical Society,	3393
Members of American Medical Association in Massachusetts,	1631
Non-members who subscribe for *Journal*,	639

These figures are suggestive of possibilities of growth for our Society, since we include only 60 per cent. of the physicians of the State, and a number of outsiders equal to about one-fifth of our membership are intelligent and enterprising enough to subscribe for the *Journal* independently.

Several matters of great importance, as affecting the relations of our Society to the American Medical Association and to sister state associations, were either adopted at this meeting of the House of Delegates or were pushed forward a step toward final decision.

EFFECT ON MEMBERSHIP OF REMOVAL TO ANOTHER STATE

An amendment to the By-laws was adopted, in substance as follows;—When a member of the American Medical Association removes to another state to practise medicine, he becomes eligible to membership in the component society of his new location "upon the presentation of a transfer card and an official statement that his dues have been paid in full in the Society in which he holds membership." "He shall forfeit his membership in the American Medical Association one year after such change of location, unless he becomes a member of the constituent association of the state to which he has moved;—Provided, however, that if the component society into whose territory such member has moved shall refuse him membership, the member shall be privileged to appeal to the Judicial Council of this Association to determine whether or not he be guilty of any act that warrants the enforcement of the provisions of this section. Pending the decision of such appeal, he shall retain his membership in the American Medical Association through his original state association;—and provided further, that the term 'practice of medicine' throughout these by-laws shall be held to mean the offering of service or counsel for the relief of those suffering from abnormal physical or mental conditions."

UNIFORM REGULATION OF MEMBERSHIP

This matter has received the serious attention of the House of Delegates since a committee on this subject was appointed in 1908.

This committee recommended that all state associations be requested to make their fiscal year conform to the calendar year and to request the component county societies to adopt the same rule.

In 1910 the committee recommended that membership should be good for one year only, that the roll should be made out each year and include only those who have paid their dues on or before a certain date, thus doing away with "suspended" members and those "not in good standing."

The committee also recommended that a uniform system of records be devised.

These recommendations have been adopted.

At the last meeting, in 1912, these recommendations were reaffirmed. It was also recommended that the constituent state associations should hold charters from the American Medical Association, and that a uniform plan for the transfer of members from one component county society to another was necessary for the good of the organization. A plan for such transfers was worked out. It was also recommended that the county societies should hold their annual meetings in October and that the newly elected officers (except delegates) should assume office on January 1, following.

The report of the committee concludes as follows:

"In view of the importance of the proper regulation of membership matters for the good of the Association, and of the widely different customs that have been followed heretofore in the various state associations, it seemed advisable to the committee that the entire question of membership, its method of regulation and its bearing on the work of the organization, should be thoroughly discussed by the executive officers of the various constituent state associations.

"A thorough understanding of existing conditions, and of the relations of the various parts of the Association to each other on the part of the executive officers of the state associations, is, in the opinion of the committee, of the utmost importance.

"The committee, therefore, recommends that a

meeting of the secretaries of the constituent state associations be called in Chicago some time during the fall of 1912, and that the Board of Trustees be requested to appropriate a sufficient amount of money to pay the traveling expenses of the state secretaries in attending this meeting, and that the recommendations of this committee as contained in this report be approved by the House of Delegates and that the committee be instructed to present these recommendations to the state secretaries for their approval and adoption."

These are matters in which The Massachusetts Medical Society is vitally interested. The American Medical Association has issued invitations for such a meeting of the secretaries of the state societies to be held in Chicago the latter part of this month. It seems desirable that our Society should be represented at this conference, which will undoubtedly have a great influence in shaping the final action of the Association.

PROPOSED AMENDMENTS TO THE CONSTITUTION AND BY-LAWS TO EXTEND MEMBERSHIP.

A committee, which had been appointed to consider this matter, made its report. In general the plan recommended is that membership in the constituent state associations shall carry with it automatically membership in the American Medical Association.

The members of the American Medical Association are then divided into four classes: members, fellows, associate fellows, and honorary fellows.

Membership carries simply the right to vote for Delegates.

If a member applies for fellowship and subscribes to the *Journal*, paying the annual dues for the current year, he shall be a fellow. In other words, a fellow will have the rights now held by members of the American Medical Association. He will have the right to active participation in the scientific meetings of the Association, will be eligible to a place on the programme, will be eligible to serve in the House of Delegates of the American Medical Association if he has been a fellow for the two preceding years, and he will receive the *Journal*.

Associate fellows and honorary fellows are to be the same as the present associate members and honorary members.

These proposed changes were referred to the Judicial Council with power to confer with constituent associations and to report to the House of Delegates. This subject will probably also be under discussion at the meeting of the secretaries.

PRINCIPLES OF ETHICS.

A revision of the Principles of Ethics, submitted by the Judicial Council, was adopted after slight modification. It was voted to send a copy to all members.

MEDICAL EDUCATION.

The first classification of medical schools was made in 1907 after an inspection and marking of the schools on a civil-service basis, the different items being grouped under ten heads. Since then 56 schools have been closed,—37 during the interim between the Council's first classification and the publication of its second classification in 1910, and 19 in the past two years.

The House of Delegates at its last meeting authorized the publication of the third classification. It also authorized a subdivision of the Class A schools into Class A and Class A plus. This latter class are the only ones now regarded as "acceptable." Schools in this class receive a rating of 70 per cent. or above in each and all of the divisions of data.

"After January 1, 1904, all colleges to be included in Class A must require not less than one year of college credits in chemistry, biology, physics, and a modern language, or two or more years' work in a college of liberal arts, in addition to the accredited four-year high-school course."

Of the 56 schools that have been closed, 28 have merged with other schools and 28 have become extinct. 23 of the 28 merged schools belonged to classes A and B, while 23 of the 28 extinct schools belonged to Class C. Thus the work has resulted in putting out of existence a considerable number of the weakest schools and the strengthening of the better schools by a combination of their resources.

The Council on Medical Education was authorized to initiate an investigation of the hospitals of the country as to the opportunities offered to internes. This is the first definite move toward the requirement of a fifth "hospital" year for the degree of M. D.

A new Section was created in Orthopedic Surgery.

Dr. John A. Witherspoon, of Nashville, Tennessee, was elected President for the ensuing year.

Dr. W. T. Councilman was re-elected to the Board of Trustees, and Dr. W. B. Cannon was re-elected to the Council on Health and Public Instruction.

The next meeting will be held in Minneapolis, June 17-20, 1913.

Voted, To accept the report. On the motion of Dr. G. W. Gay it was *Voted*, That the report be offered to the BOSTON MEDICAL AND SURGICAL JOURNAL for publication.

A letter from the American Medical Association to the Secretary, inviting the Secretary to a meeting of all the Secretaries of the constituent state associations to be held in Chicago on October 23 and 24, 1912, was read by the Secretary. Remarks on this invitation were made by Dr. Arnold, who introduced the following two motions:

Moved, That a committee be appointed to consider the relations of The Massachusetts Medical Society to the American Medical Association and to other state societies, and that it makes a report to the Council at its annual meeting.

This committee shall consist of the following officers: the President, Vice-President, Secretary, and Treasurer, and the following to be chosen by the President;—

One member of the Committee on Membership and Finance,

Two Presidents of District Societies,

Two Secretaries of District Societies,

Two of the delegates to the American Medical Association who attended the last meeting of the House of Delegates.

Moved, That the Council authorize the Secretary of The Massachusetts Medical Society, or some member of the above committee to be chosen by the President, to attend the proposed meeting of secre-

taries of the state societies at Chicago, and that the Society defray expenses other than those paid by the American Medical Association.

The motions were discussed by the following Councilors;—G. B. Shattuck, C. F. Withington, F. W. Goss, E. M. Buckingham, C. H. Cook, the Secretary, and H. D. Arnold. The motions being put were passed unanimously. The president chose for this committee the following: S. Crowell, Committee on Membership and Finance; A. R. Crandell, President, Bristol North; I. S. F. Dodd, President, Berkshire; J. F. Burnham, Secretary, Essex North; W. L. Bond, Secretary, Middlesex South; H. D. Arnold and Hugh Cabot, Delegates to the last meeting of House of Delegates, A. M. A. He also chose Dr. Arnold to represent the Society at the meeting of the secretaries in Chicago October 23 and 24.

Dr. G. B. Shattuck presented the following two motions, and they were passed unanimously;—

Moved, That all papers presented at the two-day annual meetings of the Society shall be the property of the Society.

That no paper shall occupy more than twenty minutes in its delivery except the Annual Discourse and the Shattuck Lecture.

That all papers shall be typewritten and ready for publication, and accompanied by suitable material for illustrations, if any, at the time they are read to the Sections or to the Society. Within ten days after their presentation, they shall be handed to the Secretary or his representative, who will submit them to the Committee on Publication.

Moved, That no one discussion shall occupy more than five minutes except by unanimous consent of the meeting.

Those who take part in discussions shall correct and return promptly to the Secretary the transcribed —stenographer's notes of their remarks for inclusion in the Medical Communications if deemed proper by the Committee on Publication.

Adjourned at 1.30 P. M.

WALTER L. BURRAGE, *Secretary*.

Book Reviews.

Recent Advances in Hematology: Being the Dr. James Watson Lectures for 1910. By WALTER K. HUNTER, M.D., D.Sc. With a colored plate. New York: William Wood and Company. 1912.

This monograph consists of the three Watson lectures delivered by the author in 1910 before the Royal Faculty of Physicians and Surgeons of Glasgow, and originally published in the *Glasgow Medical Journal*. It represents not so much original research, but rather a careful resumé of recent literature on the subject. The first lecture treats of the physical properties of the blood and the characteristics of its various elements; the second considers bone-marrow, lymph-nodes, platelets, chlorosis, splenic anemia and kala-agar; the third deals with the various forms of pernicious anemia, with paroxysmal hemoglobinuria, splenomegalic polycythemia, enterogenous cyanoses, leukemia, purpura, hemophelia and scurvy. The illustrated colored plate contains 42 admirable corpuscular figures. An appendix describes recent progress in methods of fixing and staining blood-films. Though somewhat belated, the re-issue of these lectures in book form constitute a valuable contribution to hematologic literature.

Text-Book for Nurses. By E. W. HEY GROVES, M.S., F.R.C.S., and J. M. FORTESCUE, M.A., M.D., of Bristol. London: Henry Frowde. 1912.

This volume in the Oxford Medical Publications is one of the most complete and satisfactory text-books for nurses that has yet appeared. Embracing, as it does, the subjects of anatomy, physiology, surgery and medicine, it affords within reasonable compass the basis for a nurse's entire training. Though comprehensive, it is not unwieldy. It does not "deal with the technical details of nursing handicraft," but aims to furnish that amount of scientific knowledge about the structure and functions of the body, and the causes and nature of its ailments, which is desirable and necessary for a nurse to have in order to understand the work of her profession and to carry it out intelligently. The book is systematic, well-arranged, and admirably illustrated. Inevitably it represents English methods and views, but in its material is none the less available for use in American training-schools. A series of appendices describes some common clinical instruments, the observation of the urine, pulse, temperature, and respiration, and methods of collecting pathologic material. The volume is a notable contribution to the literature of medical teaching for nurses.

Studies from the Department of Pathology of the College of Physicians and Surgeons, Columbia University, N. Y. Vol. XII. 1912.

This volume consists of a series of reprints of 17 papers, representing the results of work done in the department of pathology of the College of Physicians and Surgeons during the collegiate years 1909-1911. Particular attention may be called to the article by Dr. Robert T. Frank and Dr. W. J. Heimann on "The Placental Theory of Eclampsia," reviewed in the issue of the JOURNAL for June 1, 1911 (Vol. clxiv, p. 803); and to the article by Frederic M. Hanes and Jacob Rosenbloom on "A Histological and Chemical Study of the Fatty Matter of Normal and Cryptorchid Testes." In the latter article, the authors conclude that the excess of fat in the cryptorchid testes "is due to the absence of spermatogenic cells, which normally utilize during their development the fat furnished by the Sertoli cells."

THE BOSTON
Medical and Surgical Journal

THURSDAY, OCTOBER 17, 1912.

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PRECAUTIONARY X-RAY EXAMINATIONS.

IN our climate diseases of the chest, such as pneumonia and tuberculosis, cause great loss to the community through illness or death, but if they are recognized early illness may be shortened and the chances for recovery greatly improved. Here, then, is an opportunity for x-ray examinations because they not only give us another method for determining the conditions obtaining in the chest, but frequently enable us to recognize an abnormal condition earlier than is possible by the older methods of examination. With these latter methods we depend upon the senses of touch and hearing, while by means of x-ray examinations we have the use of another sense, that of sight. With the fluorescent screen the practitioner can study certain organs in motion. He can observe the shadow of the pulsating heart and that of the diaphragm as it moves up and down in expiration and inspiration. Further, by means of x-ray photographs, taken with an exposure of about one second, he can see some details that are obtainable in no other way.

So much has been said in recent years regarding tuberculosis of the lungs that the prevalence of this disease and the great mortality it causes, especially among young adults, is widely appreciated, so that it is a good example of the service precautionary x-ray examinations can render, for it is well known that if this disease is recognized very early most people recover. In a word, early recognition is vital.

The term "precautionary x-ray examinations" is a new one and needs a word of explanation. If a case of tuberculosis appears in a family, another case or cases often develop. It sometimes happens that all or nearly all the members of one family die of this disease, but such serious results could have been prevented if as soon as one member was known to have tuberculosis the lungs of the other members had been examined by means of the x-rays, *as a precaution*. Were this done it is probable that in one or more of them early signs of tuberculosis would be found that would not be so clear or definite by the other methods of examination. With this early warning such individuals would have an excellent chance of recovery before the disease had progressed so far as to make them a serious burden to their family, friends or the community. To illustrate: two sisters come to the hospital, one of whom has tuberculosis, the extent of which is definitely shown by an x-ray examination. The accompanying sister thinks herself perfectly well, but is induced to be examined by the x-rays as a precaution. This examination reveals an abnormal condition of one lung and warns her that she should take care of herself. Or again, if a case of tuberculosis appears among people working together in groups, as in an office, for example, more cases are likely to follow, but x-ray examinations of other members of this group, as a precaution, would show slight changes in the lungs, if present, and thus afford an opportunity for saving lives and preventing a long, expensive, and comparatively hopeless illness.

By means of x-ray examinations, too, the size, shape and position of the heart can be more accurately determined than by any other method, and in the strenuous life of today the early knowledge the physician thus obtains of the condition of this organ is of service to the patient. There are other diseases, also, which are less frequent and more obscure, in which precautionary x-ray examinations may be of value.

These examinations will also assist the physician to reassure the patient that he is not suffering from some disease of the chest that he fears is present, and that his dread is unfounded.

X-ray examinations are painless and, when properly made, harmless. They have been carried on at the Boston City Hospital, particularly with reference to diseases of the chest, for more than sixteen years, and no patient has been in any way injured.

In order that the community may have the benefit of precautionary x-ray examinations, the

Trustees of the Boston City Hospital, upon the recommendation of the Senior Staff, have arranged to place the excellent equipment of the X-ray Department and the experience of its staff at their disposal.

This opportunity differs from the usual hospital clinic in that patients are to be examined, but not treated, and those who come from other institutions will be referred to those institutions with a report.

The Trustees of the Boston City Hospital and the City Government have thought it wise to expend the money necessary for this clinic to promote the well-being of our citizens, and perhaps also because the investment is one capable of yielding a large return, for anything which will save lives, especially of young adults, or shorten illness yields a return, even on a money basis, of many times its cost.

In another column will be found a statement from Dr. John H. McCollom, the Superintendent of the Hospital, regarding the days and hours during which these precautionary x-ray examinations will be made.

THE PROBLEM OF THE MIDWIFE.

IN another column of this week's issue of the JOURNAL we publish an article on "Midwives in Massachusetts" by Dr. James L. Huntington. This article, which presents and reviews data about midwives in this state up to the beginning of the present summer, affords the latest available material in the study of the important midwife problem. In papers on this subject previously published in the JOURNAL Drs. Huntington and Emmons have taken the ground that the existence of the midwife implies an undesirable doubled standard and a divided responsibility in obstetrics; that the midwife should, therefore, be suppressed, rather than encouraged by recognition; and that the best agent for her suppression is the improvement of medical obstetric education. At the time of their publication, these views met with considerable opposition in various parts of the country. So effective, however, has been the propagandum against the midwife, that much of this opposition appears already to have been overcome, and there is a growing sentiment against the midwife among those who have given the subject serious consideration.

As a single piece of evidence of this growing deliberate condemnation of the midwife may be cited the address on "Cleveland's Maternity Dispensary System," delivered by Dr. A. J. Skeel before the Academy of Medicine of Cleveland, on May 17, 1912, and published in the issue of the *Cleveland Medical Journal* for July of this year. In the course of this address, Dr. Skeel says:—

"If obstetrics has any right to a place with the other branches of medicine, if its correct practice requires the wide knowledge and the skilled technic of the educated physician, if modern science has placed it on a coördinate plane with surgery, diagnosis, pediatrics, etc., then the proper solution of the midwife problem is not her education, but her elimination. Improve her as much as you can; train her as well as her capacity will permit; but never forget the great end to be attained is her total extinction. With the rapidly increasing demand for preliminary education and for a high degree of technical skill on the part of the physician, the total absurdity of allowing one-third to one-half of our female population to be delivered by individuals possessing none of these attainments must become more and more apparent."

In Cleveland, as in Boston, has been practically demonstrated the feasible possibility of caring adequately for the obstetrics of a large hospital out-patient class by an efficiently organized and administered dispensary system, without the aid of midwives. Universal application of this method, with improvement of medical obstetric education, should soon solve the problem of the midwife by her elimination.

THE SIXTY-SIXTH ANNIVERSARY OF ETHER DAY.

THE annual observation of Ether Day at the Massachusetts General Hospital took place this year, the sixty-sixth anniversary, on Wednesday of this week, Oct. 16. The usual exercises were held in the afternoon, the address this year being by Dr. W. J. Mayo, of Rochester, Minn. The occasion was also signalized by the award of diplomas to graduating house-officers, and by the annual reunion and dinner of the House Pupils' Alumni Association.

It is extremely fitting that Ether Day should be selected as the day of annual observance at the Hospital, since it is not only a day of great local importance, but one of the momentous dates in the world's history. Dr. Mayo's interesting and scholarly address this year, which we hope to publish in full in a later issue of the JOURNAL, adds another to the steadily growing series of worthy and important medical productions which have been called forth by the commemoration of this august event.

MEDICAL NOTES.

ATTEMPTED ASSASSINATION OF MR. ROOSEVELT.—News of the attempted assassination of ex-President Roosevelt reaches us as the JOURNAL goes to press. From the newspaper accounts, it appears that the large-calibre lead bullet had lodged in Mr. Roosevelt's right pectoralis major, without perforating the thoracic wall, so that, apart from the risk of extrapleural sepsis, his wound seems fortunately not serious.

YELLOW FEVER AT NEW ORLEANS.—Report from New Orleans, La., states that on Oct. 8 a case of yellow fever was discovered at quarantine in that port aboard the British steamer *Chaucer*. The patient, a Greek who had boarded the vessel at Santos, Brazil, was placed in the detention ward of the local marine hospital, and the *Chaucer* quarantined for six days.

RADIUM SPRINGS IN IDAHO.—It is reported from Boise, Idaho, on Oct. 8, that radium has been recently discovered to be present in the lava hot springs at Dempsey, Bannock County, in that state.

A CENTENARIAN.—Miss Helen Anthony, a negress, who died on Oct. 13 at Schenectady, N. Y., was locally reputed to have been born in April, 1805.

NOBEL PRIZE FOR DR. CARREL.—Report from Stockholm, Sweden, on Oct. 10, announces that the Nobel Institute prize in medicine for this year, valued at $39,000, has been awarded to Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research, in recognition of his original work in vascular surgery and in the transplantation of organs.

THE HYGIENE OF TRAFFIC.—An order recently issued by the Treasury Department at Washington, D. C., directs the head of the United States Public Health Service to make "a thorough inspection of the sanitary features of railroad trains and vessels engaged in interstate commerce." This order has as its purpose to safeguard the health of the travelling public from the risk involved in "the constant movement of persons with tuberculosis and other contagious diseases." In this work the Service will seek the coöperation of the Interstate Commerce Commission and the boards of health of the several states. It is a worthy effort in the interest of public hygiene.

NEW YORK.

ENDOWMENT OF CANCER RESEARCH.—At a meeting of the trustees of Columbia University, held on Oct. 7, it was announced that under the will of the late Augustus W. Openhym an endowment had been established for research work regarding the cause, prevention and cure of cancer. The amount of the gift was not made public, but was stated to be considerable. If at any time further cancer researches should be deemed unnecessary, it is stipulated in the will that the income of the fund donated may be used, as the trustees may determine, for research work in any branch of medicine or surgery. The endowment is to be known as the Openhym Research Fund, and the terms of the gift are substantially the same as those of the Crocker Research Fund, which the trustees purpose to combine with this. The Crocker Fund, which amounts to $1,440,777, has been placed under the direction of Dr. Francis Carter Wood, of the medical faculty and also pathologist to St. Luke's Hospital. In addition to the Openhym Fund, the trustees announced that $2,000 had been received from Clarence H. Mackay, for further medical and surgical research, $1,800 from an anonymous donor for the department of materia medica and therapeutics, and $1,000 from another anonymous donor for the department of physiology. At this meeting the official registration figures for the present session of the university were given out, showing a total gain of more than 1,000 students over last year. In the medical department, the College of Physicians and Surgeons, there are 318 students, and in the College of Pharmacy, 408.

INCREASING NUMBER OF PHYSICIANS.—In the Medical Directory of New York, New Jersey and Connecticut for 1912, just issued by the Medical Society of the State of New York, there are published the names of 17,764 registered physicians, a gain of 140 over the number given in the Directory for 1911. 13,696 of the physicians are in New York State, a gain of 55; 2,674 in New Jersey, a gain of 52; and 1,394 in Connecticut, a loss of 7. The number in New York City is 7,365, a gain of 116. In the boroughs of Manhattan and the Bronx there are 5,159, a gain of 66; in the borough of Brooklyn, 1,927, a gain of 43; in the borough of Queens, 213, a gain of 8; and in the borough of Richmond, 66, a loss of 1. In the State of New York outside the city there are 666,331 physicians, a loss of 61.

Current Literature.

Medical Record.

October 5, 1912.

1. Richter, G. *Syphilis of the Heart and Blood Vessels.*
2. Montgomery, C. M. *Chlorosis and Tuberculosis.*
3. Clark, L. P. *Remarks Upon Psychogenetic Convulsions and Genuine Epilepsy.*
4. Beach, G. W. *Some Reasons Why the General Practitioner Does Not More Frequently Recognize Pulmonary Tuberculosis in Its Incipiency.*
5. Williams, T. A. *Criticism of Orthodox Interpretations of Occupational Cramp Neurosis and the Term Neurosis.*
6. *Squier, J. B. *Experimental Studies of the Action of Electrical Cauterization on Neoplasms.*
7. Leiner, J. H. *Tics and Their Treatment; Education vs. Hypnosis.*
8. Watson, L. F. *A Method of Anoci-Association for Abdominal Operations in Selected Cases, with Nerve Block à Distance.*

6. Squier reports a case of vesical carcinoma successfully treated with the d'Arsonval current and then gives some of the results of an experimental study of the action of the Ondin or monopolar, and the d'Arsonval or bipolar current upon malignant growths of the bladder and other organs. The experiments were carried out on large white rats. He finds that the current is not entirely harmless although it does not actually char the tissues very extensively. It does not touch extensions outside the main growths. While it is valuable in checking hemorrhage it can by no means replace extensive resection in the cure of carcinoma. Its action is probably that merely of an easily handled cautery. [L. D. C.]

New York Medical Journal.

October 5, 1912.

1. Pollitzer, S. *Skin Diseases in Relation to the Sexual Organs.*
2. Allyn, H. B. *Sarcoma of the Mediastinum.*
3. Alexander, I. H. *Secondary Infections in Pulmonary Tuberculosis.*
4. Schulman, M. *Therapeutic Nihilism.*
5. Crothers, T. D. *The Empirical Treatment of Spirit and Drug Neuroses.*
6. Bierhoff, F. *Further Notes on the Sanitary Control of Prostitution in Some European Cities.*
7. Agatston, S. A. *Importance of the Early Training of Mothers in the Care of Babies.*
8. Lathrop, W. *Tetany Following Thyroidectomy.*
9. Goldstein, S. *Reimplantation of the Patient's Cartilage after Submucous Resection of the Septum for Correction of Obstructive Lesions.*

The Journal of the American Medical Association.

October 5, 1912.

1. *Fordyce, J. A. *The Administration of Salvarsan in Syphilis.*
2. Noguchi, H. *Identification of Spirocheta Pallida in Culture.*
3. *Swift, H. F. *Anaphylaxis to Salvarsan.*
4. *Post, A. *The Proper Places of Mercury and Salvarsan in Treatment of Syphilis.*
5. *Fox, Howard. *The Relative Value of Mercury and Salvarsan from a Serologic Point of View.*
6. Corlett, W. T. *The Teaching of Syphilis. The Attitude of Hospital Boards to This Disease.*
7. Swift, H. F., and Ellis, A. W. M. *The Intensive Treatment of Syphilis.*
8. Dexter, R., and Cummer, C. L. *The Importance of the Early Diagnosis of Syphilis.*
9. Keidel, A., and Hurwitz, S. H. *A Comparison of Normal and Syphilitic Extracts by Means of the Wassermann and Epiphanin Reactions.*
10. Noguchi, H. *The Luetin Reaction.*
11. Ellis, A. W. M. *Secondary Syphilitic Meningitis.*
12. Corbus, B. C. *Four Years' Experience with the Wassermann Reaction in Practice.*
13. Ball, C. R. *The Value of the Four Reactions in the Diagnosis and Treatment of Syphilitic Diseases of the Nervous System.*
14. Orton, S. T. *A Case of Extensive Brain Disease from Endarteritis, Probably of Syphilitic Origin.*
15. Myer, J. C., and Carmine, R. D. *Cardiospasm with Sacculation of the Esophagus.*
16. McDill, J. R. *Bloodless Surgery of the Liver.*
17. Hamilton, James. *A Simple Apparatus for Administering Salvarsan Intravenously.*
18. Jones, G. I. *The Treatment of Chronic Influenza.*
19. Bechet, P. E. *Extensive Dermatitis Medicamentosa from Midal (Pyramidon).*
20. Hoover, A. R. *Congenital Defect in Armenia.*
21. Livermore, G. R. *Anuria Following the Intravenous Administration of Salvarsan.*
22. Marshall, V. F. *Non-Adherent Membranous Patch in Pericolitis.*
23. Leavitt, F. E. *A Home-Made Infant Incubator.*
24. Campbell, O. H. *A Peculiar Case of Common Salt Poisoning.*
25. Hine, L. S. *Common Salt and Constipation.*

In the syposium on syphilis the following authors make the following interesting and particular statements. Fordyce: The efficiency of salvarsan bears a direct relation to the age of the infection in the early stage; three or four doses supplemented by mercury will in many cases cure the disease in from six months to a year. In some forms of syphilis of the nervous system the effects of salvarsan are more satisfactory than mercury and K.I. A combination of salvarsan and mercury is more efficient in changing the blood reaction than either alone. Swift states that after repeated doses of salvarsan certain patients show symptoms of a respiratory and vasomotor reaction like those seen in anaphylaxis and in one case a toxic erythema occurred.

Post: Mercury must be retained in the treatment of syphilis. Its usefulness is not in the least diminished by salvarsan. It may cure, but it leaves the future uncertain.

Fox: In the primary stage of syphilis, especially before the Wassermann reaction becomes positive, salvarsan is a most valuable remedy from both the serologic and clinical standpoint. Repeated intravenous injections at this stage give promise of aborting the disease in a considerable percentage of cases. No such promising results have ever been reported by the early administration of mercury alone. It is probable that the abortive method will prove still more effective when a combination of the two drugs is used. A serologic comparison of mercury and salvarsan in later stages of syphilis fails to show any decided advantage in favor of either remedy.

[E. H. R.]

Annals of Surgery.

August, 1912.

1. *Rovsing, T. *The Value of Direct Gastroduodenoscopy in Affections of the Stomach and the Duodenum.*
2. *Bloodgood, J. C. *The Conservative Treatment of Giant-Cell Sarcoma, with the Study of Bone Transplantation.*

3. *MAYO, W. J. *The Radical Operation for the Relief of Cancer of the Rectum and Recto-sigmoid.*
4. *GERSTER, *A. G...Nephrectomy* (concluded).
5. PILCHER, P. M. *Observations on the Diagnosis of Renal Tuberculosis, the Indications for Nephrectomy in Its Treatment, and the Technic of the Operation.*
6. DICKINSON, G. K. *Acute Haematogenous Infection of One Kidney in a Person Apparently Well.*
7. RENKENBERGER, F. W. *Acute Unilateral Infection of the Kidney.*
8. RANSOHOFF, J. L. *Adherent Hernias of the Large Intestine.*
9. JANEWAY, H. H. *An Apparatus for Intratracheal Insufflation.*
10. MITCHELL, O. W. H. *Picric Acid as a Skin Disinfectant.*

1. Rovsing recommends direct gastroduodenoscopy as a means of exact diagnosis in cases of gastric and duodenal disease in which all other diagnostic expedients are insufficient, as a means of differentiating ulcers in the stomach and in the duodenum, and as a means for direct attack of perilously bleeding ulcers. His instrument and technic are described. The appearance of normal stomach, gastritis, tumors and deep chronic ulcers and bleeding ulcers by diaphanoscopy is given. The appearance of the normal stomach and pylorus and the contracted pylorus, by gastroscopy, is given. In cases which presented Moynihan's typical complex of symptoms no ulcer of duodenum was found, but ulcer of stomach or gastroptosis, and cases (12) which had ulcer of the duodenum had symptoms which did not suggest its presence. Direct suture of bleeding ulcers by aid of gastroscope has been performed six times by Kraft, successfully five times. The patient who died received a severe burn by reason of failure of town current. This accident emphasizes the necessity of employing an accumulator.

2. Bloodgood's article is based upon a study of personal cases and a study of cases from the literature; 26 cases (3 periosteal, 23 medullary). He records 9 cases (including one of his own) of medullary giant-cell sarcoma which have remained well after one curetting and one case which recurred after the first curetting but has remained well after the second curetting. He has found 3 cases of medullary giant-cell sarcoma which have recurred after curetting but which have remained free from recurrence after local resection and 3 which have recurred after curetting but have remained well after amputation. He has collected 21 cases (including 3 of his own) of medullary giant-cell sarcoma which have remained well after resection in continuity, and 2 which have recurred after this treatment. He has found 14 cases of medullary giant-cell sarcoma which were subjected to primary amputation. He agrees with Coley in the use of mixed toxines in cases of all inoperable sarcoma and in operable cases shown to be very malignant. He thinks, however, there is no reason for their use in giant cell sarcoma. No evidences that attempt to remove giant cell sarcoma with curette have ever done harm. He believes he is the first to recommend and to practice direct bone transplantation in bone cavity after curetting. He believes that this procedure will in the future probably allow more frequent use of curette in treatment of giant-cell sarcoma, permitting restoration of continuity of bone in cases with thin bone-shell without resection. Bloodgood has up to date no proof that pure giant-cell sarcoma ever metastasizes. Curetting in some localizations should be operation of choice. In those localizations (upper end of fibula, lower end of ulna), where resection in continuity does not interfere with function, resection becomes operation of choice. He believes it justifiable to attempt curetting to preserve function even when there is great probability of recurrence. After curetting or resection he advocates that the wound be disinfected with pure carbolic acid followed by alcohol or zinc chloride solution. The article is rich in case histories and criticism of the choice of operation.

3. The article is based upon 71 cases submitted to radical operation for cancer of the rectum and recto-sigmoid at St. Mary's Hospital from Jan. 1, 1910, to Apr. 1, 1912. These are presented in two groups, those through a perineal or posterior incision in a single stage and those through the abdomen or abdominal combined with perineal or sacral incision in one or two stages. Of the first group there were 27 cases (local operation 2, Harrison-Crepps 5, Quenu-Tuttle 12, and Kraske 8). Of the second group there were 44 cases (abdominal and abdomino-perineal in single stage 14, and preliminary colostomy with secondary posterior operation in two stages 30). The technic of the various operations and their indications are given. In general it may be said that Mayo advocates the perineal or sacral single stage operation in the elderly, the very obese, or the poor surgical risk; and considers the sacral operation, either as a primary operation or as the second stage of the abdomino-sacral method, the operation of choice for the actual removal of the rectum. In his hands the abdomino-sacral operation in two stages has a mortality of less than half that of the abdomino-perineal operation in one stage.

4. Gerster concludes his contribution on nephrectomy in this number. Epitomies are given of 18 cases of tuberculosis, 2 cases of echinococcus, 1 case of polycystic disease, 10 cases of hydronephrosis, and 18 cases of neoplasm (cystic adenoma 1, sarcoma 7, hypernephroma 7, and carcinoma 3). Primary nephrectomy was performed 17 times for tuberculosis with 4 deaths; secondary nephrectomy 3 times with no deaths. The sac of one of the echinococcus cases was calcified. Of the 10 cases of hydronephrosis 3 died and of the 18 cases of neoplasm 8 died. The tubercle bacillus was demonstrated either in the urine or in puncture fluid withdrawn from the kidney in 40 per cent. of the tuberculous cases. [T. W. H.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

SEPTEMBER, 1912.

1. CARRELL, A. *Results of the Permanent Intubation of the Thoracic Aorta.*
2. VAUGHN, G. T. *Central Dislocation of the Femur.*
3. MARTIN, E. *Treatment of Ununited Fracture.*
4. VANDER VEER, E. A. *Surgery of the Arteries; Some Personal Experiences.*
5. SCUDDER, C. L. *A Case of Non-Traumatic Diaphragmatic Hernia. Operation. Recovery.*
6. THOMPSON, J. E. *Complete Obstruction of the Duodenum Resulting from the Impaction of a Large Gall Stone.*
7. DAVIS, G. G. *Lever Action in the Production of Traumatic Dislocations.*
8. VANDER VEER, E. A. *Talma Operation of Cirrhosis of the Liver, with Report of Cases.*
9. COTTON, F. J., AND BOOTHBY, W. M. *Nitrous Oxid-Oxygen-Ether Anesthesia. Notes on Administration. A Perfected Apparatus.*
10. *BARNEY, J. D. *The Effects of Ureteral Ligation: Experimental and Clinical.*
11. *SCOTT, G. D. *Experimental Hydronephrosis Produced by Complete and Incomplete Ligation of Ureter.*
12. *MAYER, L., AND BAEHR, G. *Bismuth Poisoning: A Clinical and Pathological Report.*
13. POLK, W. M. *Procidentia Uteri. Suprapubic Plication of Vagina and Conjoined Shortening of Utero-sacral and Broad Ligaments.*
14. MORF, P. F. *Sliding Hernia.*

10. Barney from experimental and clinical work demonstrates that sudden and complete occlusion of one ureter may produce no symptoms whatever, and

uninterrupted recovery may ensue in 21 per cent. of cases, but in event of injury to both ureters there is complete anuria in all, as is to be expected, whereas in the unilateral injuries suppression of urine occurred in only 1.6 per cent. When only one ureter is ligated pain and tenderness in the kidney, usually subsiding spontaneously, is to be expected in 26 per cent. Infection of the kidney produced by injury to the ureter, or aggravated by it, and necessitating subsequent nephrectomy occurred in 15 per cent. Both ureters may be clamped for as long as 72 hours with complete recovery after removal of the obstruction, whereas one ureter may be completely blocked for 10 days without destroying the integrity of the kidney.

11. Scott doing similar work finds that complete ligation of the ureter produces hydronephrosis, the disease depending on the duration of the obstruction. The changes in the kidney parenchyma after complete obstruction take place in a definite order. First the straight tubules are dilated, then the convoluted tubules are affected and last to suffer are the glomeruli. The interstitial tissue is usually increased and the blood vessels become sclerotic. Incomplete obstructions to the ureter also produces hydronephrosis, the microscopic changes being similar to those following complete obstruction. Complete ligation will retard secretion of the kidney but will not completely arrest it. In hydronephrosis of the highest degree the kidney epithelium is never completely destroyed, but is capable of further secretion. Complete permanent ligation of the ureter does not produce atrophy of the kidney.

12. Mayer and Baehr state that bismuth is readily absorbed from a granulating surface and when absorbed may have extremely toxic effects. It should, therefore, never be applied as a dusting powder or salve to an extensive area. Beck's bismuth paste should be used with the greatest caution. In one fatal case only 25 grams were used. The clinical picture of poisoning affords two new features, stippling of red blood cells and a morbilliform rash. [E. H. R.]

The Lancet.

September 14, 1912.

1. Hinshelhood, J. *A Lecture on Symptoms and the Early Diagnosis of the Nervous System.*
2. *Henderson, J. *Septicemia with Local Endocardial Lesion, with Records of Nine Cases.*
3. Hettle, E. H. *Carcinoma and Sarcoma of the Same Breast.*
4. Billington, W., and Goodwin, B. G. *Two Cases of Acute Pancreatitis; Abdominal Drainage; Appendicostomy; Recovery.*
5. Hughes, E. O. *Chronic Edema of One Leg in a Child.*
6. *Knox, R. *The Prophylactic Use of X-rays Before and After Operation for Malignant Disease.*
7. *Lyon, L. G. *The Care of Consumptives. A Review and a Forecast.*
8. Stanley, E. G. *Subcutaneous Rupture of the Kidney; Intraperitoneal Hemorrhage; Expectant Treatment; Recovery.*
9. *McConnel, H. W. *After-Care Under the National Insurance Act.*
10. Horn, A. E. *Health of Europeans in East Africa.*

2. Henderson gives an interesting report of 9 cases of septicemia with local endocardial lesions. In 7 the endocardial lesion was diagnosed during life; they were all fatal. These cases illustrate the 3 types found in this condition, *i.e.* the septic, typhoidal and meningeal types. For diagnosis he depends on three cardinal signs: 1. Cardiac valvular disease. 2. The occurrence of embolism. 3. The discovery of organisms in the blood stream. He discusses these three signs at some length. Treatment is of little avail in most cases. He believes that most hope lies in vaccine treatment though he has met with good results that have been obtained by the use of inunctions of collargol and protargol.

6. Knox in a short paper suggests the following rules for the use of the x-ray in malignant disease: 1. Preliminary treatment in cases suitable for operation. 2. Post operative treatment of the seat of operation and the areas of possible extension. 3. Treatment of recurrent nodules. 4. Treatment of inoperable cases and recurrences of considerable size.

7. Lyon, after a mournful and pessimistic review of the former attempts to treat consumption, proceeds to criticize modern sanatorium methods as carried on in England. There is too great a fear of a little impure air, too little exercise, too little relaxation; the food is usually bad and unattractively served; the influence on character is bad. He complains of too much medical attention. He protests against a routine practice of sending consumptives to sanatoria. He puts no faith in specific remedies, and believes sanatoria are only useful for poor people but not fitted for people whose after life work is to place them in charge of others. (It is a pity that the writer's experience and point of view is not broader. As it is few, fortunately, will be influenced by his paper). [J. B. H.]

9. McConnel describes the after care of consumptives as carried on in connection with the leading English sanatoria. He emphasizes the great importance of this work and shows how proper after care will infinitely increase the good work done at the sanatorium itself. (The importance of the subject cannot be exaggerated. It is now being carefully taken up in connection with the state sanatoria in Massachusetts.) [J. B. H.]

September 21, 1912.

1. Keith, A. *An Address on Modern Problems Relating to the Antiquity of Man.*
2. *Dardel, J. *Vertebral Ankylosis. The Various Clinical Forms.*
3. Knowlton, F. P., and Starling, E. H. *On the Nature of Pancreatic Diabetes, Preliminary Communication.*
4. Barker, A. E. *Some Unusual Contents in Hernial Sacs.*
5. Brooks, W. T., and Gibson, A. G. *A Case of Retrogressive Tuberculous Meningitis.*
6. *Liddell, J. *The Relationship Between Movable Kidney and Chronic Colitis.*
7. Munsell, K. T. *Perforating Appendicitis of Bilharzial Origin.*
8. Noel, H. L. C., and Souttar, H. S. *The Intravenous Injection of Paraldehyde.*
9. *McCann, F. J. *The Technic of the More Extensive Abdominal Operations for Cancer of the Womb.*
10. Gloyne, S. R. *On Jousset's Method of Demonstrating the B. Tuberculosis in Pleural Fluids.*
11. Jones, R. *A Review of the Congress of Alienists and Neurologists of French-speaking Countries, 1912.*

2. Dardel discusses what he calls vertebral ankylosis and the various causes. His classification is rather vague and much less desirable than that used in this country.

6. Liddell finds some very definite relationship between colitis and movable kidney. In nearly all cases of the latter there was a preceding colitis which caused the nephroptosis through the action of the colitic-toxin on the food. His ideas are interesting though not convincing.

9. This is a long and elaborate paper fully described by its title. [J. B. H.]

Correspondence.

PRECAUTIONARY X-RAY EXAMINATIONS OF THE CHEST.

BOSTON, Oct. 10, 1912.

Mr. Editor:—The following announcement regarding new work at the Boston City Hospital will be of interest to your readers:—

BOSTON CITY HOSPITAL.
HARRISON AVENUE AND SPRINGFIELD STREET,
Near Northampton Street Elevated Station.
X-RAY DEPARTMENT.
PRECAUTIONARY X-RAY EXAMINATIONS OF THE CHEST.
4-6 P. M.
DAILY EXCEPT SUNDAYS AND HOLIDAYS,
BEGINNING NOVEMBER 1, 1912.

Certain diseased conditions of the organs of the chest, such as are present in pneumonia, pleurisy and tuberculosis, for instance, can be detected *earlier* in some cases by means of x-ray than by other physical methods of examination. These examinations may also give more definite information and add to the evidence otherwise gained. The early knowledge of these conditions makes recovery quicker and more certain. For example, one of the most common diseases, tuberculosis of the lungs, is far more easily cured when recognized early, if suitable care be taken. In fact, it is well known that under such circumstances most persons recover. Since x-ray examinations may show indications of this disease before there is cough or before other signs are clearly evident by the older methods, the advantage of precautionary x-ray examinations for persons who have been exposed to tuberculosis is obvious, as, for instance, members of a family, or of a group of persons working together, especially indoors, in which one case has already occurred, for frequently under such conditions another case or cases develop. A precautionary x-ray examination of such exposed persons shows whether or not the lungs are normal and thus gives warning if care be needed.

In diseases of the heart it is most important to know the size, shape and position of this organ, and this can be determined more accurately by means of x-ray examinations than in any other way. Here also variations from the normal may be recognized early.

In order, therefore, that the community may have the benefit of precautionary x-ray examinations, the Trustees of the Boston City Hospital, on the recommendation of its Senior Staff, have arranged that the X-ray Department shall be open at the hours above stated.

This clinic is intended for diagnosis, not for treatment, and patients sent to it from other institutions for examination will be referred back to those institutions with a report.

The Trustees are much gratified that no patient has been injured by x-ray examinations which have been made at the Hospital during the past sixteen years.

Very truly yours,

JOHN H. MCCOLLOM, M.D.
Superintendent Boston City Hospital.

Miscellany.

RECENT DEATHS.

MR. STEWART DICKEY, of Belfast, Ireland, recently appointed professor of anatomy at the Western Medical College, died last week in London, Ontario.

DR. HENRY J. RHETT, of Philadelphia, who died at Newport R. I., on Oct. 7, was born in 1862. He is survived by his widow.

DR. WILLIAM BREWSTER CLARK, of New York, died on October 11, after an illness of several months. He was born at Newark, N. J., in 1850. Dr. Clark was graduated from Amherst College in 1876, with the degree of B.S., and from the College of Physicians and Surgeons, New York, in 1879. His professional life was spent in the city of New York, except that for a number of years he practiced at West Hampton, Long Island, during the summer season. He is survived by his widow and by one son.

DR. MORRIS LOEB, of New York, eminent as a chemist and educator, and also as the founder or liberal patron of many scientific, philanthropic and charitable institutions, died from typhoid fever at his summer home at Seabright, N. J., on October 8. He was born in Cincinnati on May 23, 1863, and was graduated from Harvard in 1883. In 1887 he received the degree of Doctor of Philosophy from the University of Berlin, and for a year afterward pursued a course of studies at the University of Heidelberg and Leipzig. In 1888 and 1889 he taught as an assistant to Prof. Wolcott Gibbs in Harvard University, and then for two years as a docent in chemistry at Clark University. From 1891 to 1906 he was professor of chemistry and director of the chemical department at New York University; a position he resigned to devote himself to special lines of chemical research and more largely to philanthropic and communal work. He was a public benefactor who had won the highest esteem of the entire community, and his death is universally lamented.

DR. WALTER SAVAGE WHITMORE, of Oceanic, Monmouth County, N. J., died on October 11 at the Monmouth Memorial Hospital, Long Branch, after an operation for appendicitis. Dr. Whitmore was sixty-five years of age, and was graduated from the medical department of New York University in 1887. He practised at Red Bank, N. J., as well as at Oceanic, and was attending physician to the Monmouth Memorial Hospital at Long Branch.

DR. CHARLES A. GORSE, a practising physician of Meadowbrook, Orange County, N. Y., was killed with a shotgun on October 10 by his son, who was seized with a sudden attack of homicidal mania. Young Gorse had previously been a patient at the Middletown State Hospital for the Insane, but had been discharged from that institution.

SOCIETY NOTICES.

NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—There will be a meeting at the New England Hospital Medical Society Thursday, Oct. 17, at 7.30 p. m. Section: Obstetrics. Chairman, Dr. Alice Bigelow. Papers: I. "A Few Cases of Albuminuria with Pregnancy," Dr. Mary Hobart. II. "The Use of Scopalamine and Morphine in Obstetrics: A Preliminary Report," Dr. Hannah G. Myrick.

MARGARET L. NOYES, *Secretary,*
32 St. James Ave.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.—A stated meeting of the Association will be held in Du Bois Hall, New York Academy of Medicine, 17 West 43d Street, Manhattan, on Monday, October 21, 1912, at 8.30 p. m., precisely.

APPOINTMENT.

DR. JOHN M. CONNOLLY, of Boston, has been appointed a professor in the medical school of the State University of Oregon.

Original Articles.

MUSCLE TRAINING IN THE TREATMENT OF INFANTILE PARALYSIS.

BY WILHELMINE G. WRIGHT,

Boston Normal School of Gymnastics, 1905; Chirurg.—orthopäd. Klinik of Prof. Dr. A. Hoffa, Berlin, 1908.

INTRODUCTION.

THE recent epidemics of infantile paralysis have left behind them many victims.

The restoration of these children to a useful amount of strength and the prevention of deformities are the problems to be dealt with. The latter is best accomplished by means of braces and plaster jackets applied by a competent orthopedic surgeon. The other problem of bringing back the maximum of strength to the weakened muscles can only be solved by carefully supervised exercises.

In most cases the duty of supervision falls best upon the parents, who must first be trained by the family physician. It is for his guidance in prescribing the exercises and from time to time changing them as the muscles gain in strength that this paper has been written. It therefore assumes a knowledge of muscle and joint anatomy, but goes into detail concerning the exercises, with which the physician is presumably unfamiliar.

It has been the writer's experience, during the six years in which she has been the assistant of a surgeon in the treatment of infantile paralysis by muscle training, massage, and electricity, that better results have been obtained from the combination of physician and parent than where the management of the exercises has been left to an unskilled gymnast or masseur, who has neither the scientific knowledge of the physician nor the patience and enthusiasm of the parent.

The training of the muscles should be begun as soon as the patient can move his limbs freely without pain. In most cases this will be from three to six weeks after the initial attack.[1] It is possible also to accomplish a great deal for cases that have been neglected for years.

REASON FOR THE USE OF EXERCISES IN INFANTILE PARALYSIS.

Almost every muscular contraction is brought about by the stimulation of nerves from more than one spinal center.

In infantile paralysis[2] "a localized hematogenous myelitis has attacked the cord and has destroyed more or less at random certain areas of spinal nerve centers. Unless the cord lesion has been extensive the chances are rather against the total destruction of all the centers and associations of any large number of muscles, some centers or associations having perhaps escaped." For this reason "there exists in many paralyzed limbs a possible amount of muscular power that is not suspected and will not be available unless cultivated and developed." "The absence of function in a muscle or group of muscles does not necessarily mean paralysis, even in the later stages of the affection."

The principles which underlie the training of muscles which have partially or wholly lost their power of voluntary contraction as a result of infantile paralysis do not in any way differ from those underlying the development of normal muscles. The result in both instances is an improvement in the nutrition of the muscle fibre and in the facility with which the nerves carry their impulses.

The contraction of muscles and the alternate flexion and extension of joints exert a pumping action on the veins and lymphatics which is necessary to the proper flow of the blood and lymph. Moreover, there is a reflex dilation of the arterioles of a contracting muscle and of the corresponding area of the skin. Whenever, therefore, a limb is in disuse its circulation is seriously impaired and the muscles waste from lack of nourishment.

In paralysis the beneficial effects of muscular contraction on the circulation may be in part supplied by massage, vibration, baking, electricity, passive movements, etc., and they undoubtedly do, to a certain extent, prevent the wasting away of the paralyzed muscles. Wherever there is, however, the ability to contract a muscle even slightly by an effort of the will, the muscle cells are more favorably affected by this contraction than by any quickening of the circulation by other means. When not used the muscle cells degenerate and the only way to increase oxidation is to make them work.

If a lively circulation is started in the muscle before it contracts, the contraction will naturally be attended by greater benefit to the muscle fibres. For this reason it is advisable in treating cases of infantile paralysis to make use of the therapeutic measures mentioned above before giving the exercises, even when the voluntary power of contraction is fairly good.

In infantile paralysis certain nerve cells supplying a muscle are destroyed, and those which are left, being unaccustomed to work together, perform their work badly and without coördination.

The possibility of training nerves to work together with precision is shown in the formation of habits. In his "Outlines of Psychology" Royce says, "parts that have often functioned together tend to function more easily together again." The improvement of the nervous system is due to the perfection of the connection between the synapses and the nerve cells. Each time a partially paralyzed muscle contracts, it not only improves the nourishment of its fibres, but also the coördination of the nerves which stimulate it.

The amount of improvement possible for any given muscle is, of course, proportionate to the

number of uninjured nerve cells which supply it. This is an impossible thing to determine accurately and by far the safest plan in directing the exercises is to assume that every muscle is capable of attaining the normal.

If any muscle shows no signs of attaining anything like a useful amount of function after the exercises have been faithfully carried out for a sufficiently long time (at least a year), it may be advisable to discontinue work on it, as it is an advantage to give as few exercises as possible, in order to avoid unnecessary mental fatigue in the patient.

PRACTICAL DETAILS OF THE TREATMENT.

It should never be left to the patient to do his exercises alone, even when he is old enough to understand his own case. The response of muscle and nerve is dependent on the strength of the stimulus and the volition of the patient is greatly aided by the outside stimulus of a word of command. It is a help if the physician puts his hand on the muscle to be contracted or performs the movement passively, while urging the patient to make the greatest possible effort. Other methods of aiding the patient's will, such as placing an object within reach of the part to be moved and telling him to touch it, will, of course, suggest themselves. If the patient is a child the schemes for exciting interest have to be manifold and varied every day, but there should not on that account be any sacrifice of precision in the performance of the exercises. The patient's mental attitude is always the first obstacle to be overcome. Whoever directs the exercises should discourage "I can't," and make the patient feel that "he never has, but he is going to." If they are to be a success at all a great amount of faith and enthusiasm is necessary on the part of the physician or parent who oversees the exercises.

While performing the exercises the paralyzed limbs should be uncovered, as the action of the muscles cannot be accurately observed through clothing. When the paralysis is extensive, the patient, if a young child, should be entirely undressed for the treatment.

A table or other hard, smooth, horizontal surface, preferably not the floor, is absolutely necessary for the proper performance of the exercises, as it eliminates as much as possible the resistance of friction and enables a weak muscle to perform movements which would be unwholly impossible for it on a soft, yielding surface like that of a bed or couch.

In all exercise periods the whole attention of the patient should be required, or his ability to use his muscles will be very much underestimated and the exercises will be much less effective. For this reason it is desirable that no person except the one who directs the exercises should be present. Certainly no one should ever be allowed as a mere onlooker.

The following exercises are given in order of progression from those which the weakest muscles are capable of performing to those which require normal strength. In fitting the exercises to the patient, each group of muscles must be tested as to what it can do, and given as hard an exercise as it is capable of performing. As soon as the muscles outgrow the exercise first given, it should be discarded and the one next in order of strength should be taken up, and so on.

A rough method of classifying the muscles according to the amount of resistance they can overcome is the following:—

1. Muscle capable of overcoming gravity and outside force—normal.
2. Muscle capable of overcoming gravity alone—good.
3. Muscle capable of overcoming friction of joint and table—fair.
4. Muscle capable of overcoming friction only when assisted—poor.
5. Muscle incapable of any contraction—bad.

This furnishes a simple means of recording and noting progress. Thus, if the knee can be extended while the patient lies on his side, the quadriceps belongs to class 3. If, later, it can be extended when the patient sits on the table with his legs hanging down, it belongs to class 2, etc.

In every case where the physician resists with his hand the action of a set of muscles, he should be careful to graduate his resistance from weak at the beginning of the movement to strong in the middle, and to weak again at the end of the movement, in accordance with the change in leverage that takes place during the movement. The resistance at every point should be just a little less than would stop the movement. It is time to begin resistance in any given exercise when the movement can be performed freely without resistance to its fullest extent.

It is a good rule to let the patient go through all his exercises once a day for six days in the week. The one day off prevents his becoming stale. Each exercise may be performed ten or twelve times in succession with a rest of about ten seconds before the next exercise.

Where contractures of joints exist, they should be done away with before exercises are attempted. When a weakened muscle is kept on the stretch by contracted antagonists there is no possibility of strengthening it until the resistance is removed.

EXERCISES.

THE TRUNK.

Flexors of the Spine.

(External oblique, internal oblique, transversalis, and rectus abdominis).

plus

Flexors of the Thighs on the Trunk.

(Psoas and iliacus, rectus, etc.)

NOTE: It is impossible to exercise the abdominal muscles (flexors of the spine) without at

the same time making use of the hip flexors. These exercises are for abdominal paralysis:

1. The patient lies on his side on the table and draws both knees up to the chest.

The resistance to be overcome is the friction of the surface of the table and of the joint surfaces. The movement may be done in three ways:—

a. With assistance from the physician, who places his hand under the patient's knees and pushes them up, at the same time letting the patient do as much of the work as possible. When there is no visible contraction of the muscles the patient should still exert his will to perform the movement, while the physician performs it for him.

b. By unaided contraction of the muscles.

c. With resistance from the physician, who places his hand on the patient's knees and pushes down on them with not quite force enough to stop the movement.

2. The patient lies on his back and draws both knees up to his chest.

The resistance is the weight of the legs.

If the back is hollowed, knees flexed, and feet drawn toward the body, but not lifted from the table, the flexors of the hips are probably doing most of the work and the abdominal muscles very little.

3. The patient sits in a reclined position with the back resting against a slanting support, arms folded and knees held down. He then raises his body to a sitting position.

The resistance is the weight of the body and the progression is toward a lying position as the starting point.

Care should be taken that all the preceding exercises are performed symmetrically, as there is often greater weakness of the muscles on one side than on the other.

Extensors of the Spine.

(Erector spinae muscles, trapezii, latissimus dorsi, etc.)

plus

Extensors of the Thighs on the Trunk.

(Gluteus maximus, etc.)

Note: These exercises are for paralysis of the back muscles, which cannot be exercised without at the same time exercising the extensors of the hips:

1. The patient sits with the trunk bent forward, hips flexed, and raises the trunk to the erect position.

The resistance is the weight of the trunk.

The progression in strength is:—

a. With hands on hips.

b. With hands behind neck, elbows back.

2. The patient lies face downward on the table with feet held down and hands clasped behind the back at the waist line and raises the trunk as high as possible, keeping the head thrown back and chin drawn in.

The resistance here is the weight of the trunk.

The exercise may be made more difficult by raising the center of gravity as in the preceding exercise.

A unilateral paralysis of the spinal extensors, abdominal or shoulder muscles, always tends to produce a lateral curvature of the spine, which can only be guarded against by the use of a suitable support. As it is impossible to predict whether the convexity of the curve will be toward the weaker muscles or away from them, anyone unfamiliar with the treatment of lateral curvature by exercises might do more harm than good by an attempt to train the muscles. The exercises given above are, however, perfectly safe, if the patient's back is carefully watched to prevent twisting and bending in raising the trunk.

Lateral Flexors of the Spine.

(Quadratus lumborum, rectus abdominis, external and internal oblique (posterior parts) and erector spinae muscles of left or right side.)

1. The patient lies face down on the table and draws the hip toward the shoulder of the same side, keeping the knee straight and dragging the leg up along the table,

a. Without other resistance than the friction of the table.

b. With resistance from the physician, who holds the patient's ankle and pulls down on it, while the patient tries to draw the foot away from him.

2. The patient stands and raises the hip, thus lifting the foot from the floor without bending the knee.

Occasionally a unilateral paralysis of these muscles can cause a limp in walking when the leg muscles are very little or not at all affected. This is due to the fact that the hip on the paralyzed side is dropped when the foot is raised, instead of being slightly raised as it is normally.

The Lower Extremity.

Flexors of the Thighs on the Trunk.

(Psoas, iliacus, rectus, sartorius, pectineus, and adductor brevis and longus.)

1. The patient lies on his left side if the left leg is to be exercised, while the physician holds the right leg up out of the way, or vice versa. The patient then flexes the hip, bringing the knee up to the chest.

a. With assistance from the physician.

b. By unaided contraction of the muscles.

c. With resistance on the front of the ankle.

2. The patient lies on his back and brings the knee up to the chest.

a. Without other resistance than the weight of the leg.

b. With resistance from the physician, who exerts a downward pull on the ankle.

The physician should steady the patient's knee, as it is important that the leg should not be allowed to twist.

If in all the preceding exercises the hip is flexed and the leg brought forward with the knee straight, both the flexors of the hip and the extensors of the knee are obliged to work, so that both sets of muscles are exercised.

Extensors of the Lower Leg on the Thigh.
(Quadriceps extensor.)

1. The patient lies on his side (left side for left leg, and vice versa). Starting with the knee completely flexed, he extends it until the leg is in a straight line with the thigh.
   a. With assistance on the back of the ankle.
   b. By unaided contraction of the muscles.
   c. With resistance on the front of the ankle.
2. The patient lies prone with the knee bent at right angles, foot pointing upward, and extends the knee against resistance offered on the front of the ankle. The amount of resistance may be as little or as much as the muscle is capable of overcoming.
3. The patient sits on the edge of the table with knees bent at a right angle, legs hanging down, and brings the foot up until the leg is horizontal and is in a line with the thigh.
   a. With the resistance of gravity alone.
   b. With the resistance of the physician's hand on the front of the ankle.

Care should be taken that the patient does not swing the leg backwards and forwards, thus getting the impetus of a pendulum motion to aid in raising the leg.

Paralysis of the quadriceps extensor occurs more often than that of any one muscle (Lovett and Lucas) and exercises for the restoration of knee extension power are of great importance. Until the quadriceps is strong enough to allow the patient to stand and bend the knee without falling all walking must be done with the knee locked, and a genu recurvatum may result unless a brace is used.

A combination exercise for the quadriceps and the hip flexors was mentioned under the other hip flexor exercises.

Extensors of the Thigh on the Trunk.
(Gluteus maximus, biceps femoris, semitendinosus, and semimembranosus.)

1. The patient lies on his side (left side for left leg, and vice versa) with the hip flexed as far as is possible with the knee extended, and brings the leg back until it is in a line with the body.
   a. With assistance on the front of the knee.
   b. By unaided contraction of the muscles.
   c. With resistance on the back of the knee.
2. The patient lies face down on the table with both legs from the hips down hanging over the edge. He must hold on with his hands to the other side of the table or be held by some other person. In this position he raises the leg with the knee straight until it is in a line with the body or slightly higher.
   a. With the resistance of gravity alone.
   b. With the resistance of the physician's hand placed just above the knee.

No pendulum action of the leg should be allowed.

3. The patient lies on his back with the knee drawn up to his chest and extends both hip and knee against resistance from the physician's hand placed on the sole of the foot. The physician should steady the knee with his other hand.

Quadriceps takes part in this exercise as well as the hip extensors, although it can still be done quite powerfully when the quadriceps is very weak.

4. The exercises given above for the extensors of the spine are also powerful exercises for the extensors of both hips.

The training of the hip extensors is very important, as good hip extensors and fair hip flexors enable the patient to walk with the help of braces, even when all other leg muscles are badly affected.

Flexors of the Lower Leg on the Thigh.
(Biceps femoris, semitendinosus, semimembranosus, gastrocnemius and popliteus.)

1. The patient lies on his side (left side for left leg, and vice versa), with the knee extended, and bends the knee, bringing the heel up until it touches.
   a. With assistance on the front of the ankle.
   b. By unaided muscular contraction.
   c. With resistance on the back of the ankle.
2. The patient lies prone and bends the knee, bringing the heel up to the body.
   a. With the resistance of gravity.
   b. With the resistance of the physician's hand on the back of the ankle.

This movement is performed mainly by the hamstring muscles and can be very well done in the absence of all power in gastrocnemius.

Abductors of the Thigh.
(Tensor fasciae femoris, gluteus medius, and gluteus minimus.)

1. The patient lies on his back, knees straight and legs together, and moves the leg to be exercised straight sideways, keeping the knee and foot directed upwards to prevent rotation in the hip joint.
   a. With assistance on the inner side of the ankle.
   b. By unaided muscular contraction.
   c. With resistance on the outer side of the ankle.
2. The patient lies on his side (right side for left leg, and vice versa), and raises the leg straight sideways, keeping it in a line with the body.
   a. With the resistance of the weight of the leg.
   b. With the resistance of the physician's hand on the outer side of the ankle.

Adductors of the Thigh.

(Gluteus maximus (lower part), gracilus, pectineus, and adductor longus, brevis, and magnus.)

1. The patient lies on his back with the leg adducted, knee straight, and draws it in toward the other leg, keeping the knee and foot directed upwards.

a. With assistance on the outer side of the ankle.

b. By unaided muscular contraction.

c. With resistance on the inner side of the ankle.

2. The patient lies on his back with the knees and hips flexed, heels drawn up to the body, and soles resting on the table, knees spread apart, and brings the knees together, thus adducting the thighs.

a. With the resistance of gravity (the muscles have by no means the whole weight of the legs to lift).

b. With the added resistance of the physician's hands pushing against the inner sides of the knees.

Inward Rotators of the Thigh.

(Tensor fasciae femoris, part of adductor magnus, gluteus medius (anterior half), gluteus minimus, semitendinosus, and semimembranosus.)

1. The patient lies on his back, legs straight and slightly separated, toes pointing outward, and hips held firmly to prevent rolling, and turns the whole leg inward until the knee and front of the foot point towards the other leg.

a. With assistance on the outer side of the foot and ankle or of the knee.

b. By unaided muscular contraction.

c. With resistance on the inner side of the foot and ankle or of the knee.

Outward Rotators of the Thigh.

(Gluteus maximus, gluteus medius (posterior part), ilio-psoas, adductor magnus, longus, and brevis, pectineus, obturator externus, obturator internus, gemelli, pyriformis, rectus and biceps.

1. The patient lies on his back with legs straight and slightly separated, toes pointing inwards, and hips held firmly to prevent rolling, and turns the whole leg outwards, until the knee and front of the foot point away from the other leg.

a. With assistance on the inner side of the foot and ankle or of the knee.

b. By unaided muscular contraction.

c. With resistance on the outer side of the foot and ankle or of the knee.

Dorsal Flexors of the Foot on the Lower Leg.

(Tibialis anticus, peroneus tertius, extensor proprius hallucis, and extensor longus digitorum.)

NOTE: For paralysis of the anterior muscles of the lower leg.

1. The patient lies prone with the knee flexed at right angles, so that the lower leg is directed vertically upward. The physician should hold the patient's leg firmly and steady it, so that only the foot can be moved. The patient then draws the front of the foot down toward the knee.

a. With the assistance of gravity alone.

b. With resistance on the top of the foot just above the toes.

2. The patient sits on the edge of the table with the legs hanging from the knee down, and while the physician steadies the leg, raises the front of the foot as high as possible.

a. With the resistance of gravity alone.

b. With the resistance of the physician's hand on the top of the foot just above the toes.

Plantar Flexors of the Foot on the Lower Leg.

(Gastrocnemius, soleus, plantaris, flexor longus hallucis, tibialis posticus, flexor longus digitorum, peroneus longus and peroneus brevis.)

NOTE: For paralysis of the calf muscles.

1. The patient takes the same position as for exercise 1 of the dorsal flexors of the foot, and raises the front of the foot till it points upward, at the same time drawing down the heel.

a. With assistance on the top of the foot.

b. With the resistance of gravity alone.

c. With the added resistance of the physician's hand pushing down on the ball of the foot or pushing up on the heel.

2. The patient sits as for exercise 2 of the dorsal flexors of the foot, while the physician holds the foot flexed and offers resistance on the ball of the foot as the patient extends the ankle.

The tendo Achilis should be observed in the preceding exercises to make sure that the calf muscles are really working, as the flexors of the toes are able to draw the front of the foot down with considerable strength when there is very little power in the other muscles.

The calf muscles are of very little practical use in walking until they are strong enough to allow the patient to stand on the ball of the foot with the heel raised from the floor.

Supinators of the Foot,—the Muscles Which Turn the Sole of the Foot Inward into the Position of Varus.

(Flexor longus hallucis, tibialis posticus, flexor longus digitorum and tibialis anticus.)

1. The patient sits on the edge of the table with the legs hanging down from the knee, and the physician steadies the leg, while the patient turns the front of the foot inward and upward toward the other ankle.

a. With the resistance of gravity alone.

b. With the added resistance of the physician's hand against the inner side of the foot.

Pronators of the Foot,—the Muscles Which Turn the Sole of the Foot Outward into the Position of Valgus.

(Peroneus tertius, peroneus longus and peroneus brevis.)

1. The patient sits as for the supinator exercises and turns the front of the foot outward and upward away from the other foot.

a. With the resistance of gravity alone.

b. With the added resistance of the physician's hand against the outer side of the foot.

Flexors of the Toes.

(Flexor longus hallucis, flexor longus digitorum, flexor brevis digitorum, flexor accessorius, and lumbricales.)

1. The patient sits with the legs hanging from the table and curls the toes under, making a "fist" with the foot.

a. Without resistance.

b. With resistance from the physician, who places one finger across underneath the toes and pushes up against them.

With strong flexor muscles not only the toes are flexed, but the whole sole of the foot is wrinkled.

Extensors of the Toes.

(Extensor proprius hallucis, extensor longus digitorum, extensor brevis digitorum and lumbricales.)

1. The patient sits with the legs hanging off the table and raises the toes.

a. With the resistance of gravity alone.

b. With resistance from the physician, who places one finger across the tops of the toes and pushes down against them.

When the patient is able to walk without braces, exercises in balancing, tip-toe walking, heel raising and knee bending, etc., are useful for the further training of the leg muscles.

THE UPPER EXTREMITY.

Elevators of the Shoulder Girdle.

(Trapezius (upper part), and levator anguli scapulae.)

1. The patient lies on his back with the arm at the side and shrugs the shoulder, bringing it as nearly up to the ear as possible.

a. With the assistance of the physician, who grasps the patient's arm above the elbow and uses it as a lever to raise the shoulder while the patient aids the movement by trying to contract the muscles.

b. Without outside help.

c. With resistance from the physician, who pushes down on the point of the shoulder with one hand.

2. The patient sits erect with the arm hanging at the side, and raises the shoulder as high as possible.

a. With the resistance of gravity alone.

b. With the added resistance of the physician's hand pressing down on the point of the shoulder.

The training of these muscles may be of great importance, as the upper part of trapezius may be transplanted to replace a paralyzed deltoid.

Abductors of the Upper Arm.

(Deltoid, supraspinatus and biceps.)

plus

The Muscles Which Turn the Scapula So That the Glenoid Fossa Points Upward.

(Trapezius and serratus magnus.)

1. The patient lies on his back with the arm at the side and moves it sideways upward along the table until it is stretched above his head.

a. With assistance under the elbow.

b. Without outside help.

c. With resistance above the elbow.

2. The patient sits erect with the arm at the side and raises it straight sideways until it is stretched vertically above his head.

a. With the resistance of the weight of the arm.

b. With the added resistance of the physician's hand pushing down just above the elbow.

If it is desired to exclude movement of the scapula in the preceding exercises the physician must hold the shoulder girdle down firmly with one hand, in which case the arm will be raised only to shoulder height.

Any loss of power in the deltoid is apt to be more permanent than loss of power in other muscles, so that its training is often very discouraging.

Adductors of the Upper Arm.

(Pectoralis major, latissimus dorsi and coracobrachialis.)

plus

The Muscles Which Turn the Scapula So That the Glenoid Fossa Points Downward.

(Rhomboideus major and minor, and pectoralis minor.)

1. The patient lies on his back with the arm stretched above his head, and moves it sideways downward along the table until it touches the side.

a. With assistance above the elbow.

b. With the resistance of the friction of the table.

c. With the resistance of the physician's hand below the elbow.

2. The patient sits with the arm stretched vertically above the head and brings the arm sideways downward to the body, while the physician gives resistance on the under side of the arm just above the elbow.

This is not an exercise for weak adductors because it would be impossible to distinguish anything but a powerful contraction of the muscles from the weight of the arm, which is sufficient of itself to overcome a slight degree of resistance in bringing the arm back to the side.

To exclude movement of the scapula in the preceding exercises the physician must hold the

shoulder girdle down firmly, in which case the starting position will be with the arm at shoulder height.

The Muscles Which Move the Upper Arm Forward.

(Pectoralis major (upper part), deltoid (anterior part), coraco-brachialis and biceps.)

plus

The Muscles Which Turn the Scapula So That the Glenoid Fossa Points Upward.

(Trapezius and serratus magnus.)

1. The patient lies on his side (right side for left arm, and vice versa) with the arm straight and lying against the side, and raises the arm straight forward upwards until it is stretched above his head.
   a. With assistance on the back of the elbow.
   b. Without outside help.
   c. With resistance on the front of the elbow.

Care must be taken that the patient does not roll and fling the arm.

2. The patient sits erect with the arm at the side and raises it straight forward upwards until it is stretched vertically above his head.
   a. With the resistance of the weight of the arm.
   b. With the added resistance of the physician's hand pushing on the front of the elbow.

To exclude movement of the scapula, the shoulder girdle must be held firmly down and the arm will only be raised to shoulder height.

The Muscles Which Move the Upper Arm Backward.

(Latissimus dorsi teres major, deltoid (posterior part), and triceps.)

plus

The Muscles Which Turn the Scapula So That the Glenoid Fossa Points Downward.

(Rhomboideus major and minor, and pectoralis minor.)

1. The patient lies on his side (right side for left arm, and vice versa), with the arm stretched above his head, and brings it forward downward past the line of the body and backwards as far as possible.
   a. With assistance on the front of the elbow.
   b. Without outside help.
   c. With resistance on the back of the elbow.
2. The patient sits erect with the arm stretched vertically above his head, and while the physician offers resistance on the back of the elbow, brings the arm forward downward past the line of the body and backwards as far as possible. Gravity assists the movement until the arm reaches the line of the body and opposes it the rest of the way.

To exclude movement of the scapula the shoulder girdle must be held firmly down, in which case the starting position will be with the arm stretched forward at shoulder height.

Outward Rotators of the Upper Arm.

(Infraspinatus, teres minor and deltoid posterior part.)

1. The patient lies on his back with the arm slightly abducted, palm down, and turns the whole arm outward until the front of the elbow and the palm of the hand are directed upwards.
   a. With assistance on the inner side of the elbow.
   b. Without outside help.
   c. With resistance on the outer side of the elbow.

The elbow must be watched to see that it really turns, as turning of the hand may mean action of the forearm muscles only.

2. The patient sits with the arm supported at shoulder height and the elbow bent at a right angle to prevent the supinators of the hand taking part in the movement, and rotates the upper arm backwards.
   a. With the resistance of gravity.
   b. With the resistance of the physician's hand on the thumb side of the wrist.

Inward rotators of the Upper Arm.

(Latissimus dorsi, pectoralis major, subscapularis, teres major and deltoid [anterior part].)

The exercises are the same as those described for the outward rotators, only given in the reverse direction.

Flexors of the Forearm on the Upper Arm.

(Biceps, brachialis anticus, supinator longus, pronator radii teres, flexor carpi radialis, flexor carpi ulnaris, palmaris longus and flexor sublimis digitorum.)

1. The patient sits with the inner side of the whole arm resting on the table, and bends the elbow by sliding the forearm along the surface of the table.
   a. With assistance on the back of the wrist.
   b. By unaided contraction of the muscles.
   c. With resistance on the front of the wrist.

Care must be taken that the patient does not perform the movement by creeping with the fingers on the table.

2. The patient sits with the elbow resting on a cushion and raises the forearm until the hand touches the shoulder.
   a. With the resistance of gravity alone.
   b. With added resistance on the front of the wrist.

Extensors of the Forearm on the Upper Arm.

(Triceps, anconeus, extensor carpi ulnaris and extensor communis digitorum.)

The positions for the exercises are the same as for the flexors of the forearm and the exercises themselves are exactly the reverse.

Outward Rotators of the Forearm.
(Biceps, supinator longus, and supinator brevis.)

1. The patient sits with the arm supported on the table, elbow flexed and palm down, and turns the hand over until the palm is facing upwards.

2. The physician grasps the patient's hand (as if to shake hands) and offers resistance as the patient turns the hand over.

Inward Rotators of the Forearm.
(Pronator radii teres, pronator quadratus, supinator longus and flexor carpi radialis.)

The exercises are exactly the reverse of those for the outward rotators of the forearm.

The Muscles Which Move the Hand and Fingers.

The most important of these muscles are situated in the forearm, and a few of the short muscles which move the fingers in the hand.

The exercises should be given with resistance whenever the muscles are capable of overcoming it. It has not been thought necessary to describe them in detail, as paralysis of these muscles is of very infrequent occurrence. The following list includes all the movements of which the hand and fingers are capable:—

1. Flexion of the wrist.
2. Extension of the wrist.
3. Movement of the wrist toward the thumb side.
4. Movement of the wrist toward the little finger side.
5. Flexion of the fingers and thumb.
6. Extension of the fingers and thumb.
7. Abduction of the fingers and thumb.
8. Adduction of the fingers and thumb.

SCATTERING NOTES ON ARTHRITIC DISEASE.

BY H. W. MARSHALL, M.D., BOSTON.

THE numerous facts included in any complicated subject can be presented in logical order with care proportionate to their relative values only with considerable difficulty; and despite precision in presentation which is indispensable for correct understanding by others, there may be so many complexities in some topics that readers find them too tiresome to follow even when all points are explained with mathematical accuracy.

Supplementary papers dealing with small groups of details, or with single important features therefore are needed in order to fix in memory clearly a few points at a time; after which the complete subject becomes less difficult, and by repeated efforts may be understood possibly in all its intricacies.

As an example, it is conceded that understanding of arthritic disease is often faulty and that it is necessary to discuss it in various ways to comprehend it fully. Accordingly the following heterogeneous aspects which are set down in disconnected, independent manner have a definite value of their own.

The influence of prevailing medical ideas upon advances in treatment of joint conditions, and some comparisons of bedside and laboratory methods: Out of the confusion of old empiricism modern medicine has advanced by adherence to accurate observations and the accumulation of data into systematized masses of knowledge. Empirical methods depending upon observations alone without due regard to theory, and theories unsupported by observations are looked upon very sceptically at present although both are essential elements in scientific investigation.

Conservatism and insistence upon rational theories supported by obvious proofs are dominant features at the present time, and at such a time it is wise to remember the great value of unproved theories and empirical data, and that progress depends first upon readiness to try new experiments and theories.

It is advisable to entertain scepticism concerning theories or new data, but there should not be a scornful attitude which is shown occasionally among a few careful laboratory workers toward less careful clinical methods. Bedside methods are as necessary as laboratory ones, and while progress depends upon conservatism in making judgments it also requires a progressive spirit in being ready to try new things. A maximum rate of advancement needs proper balance between the influences exerted by cautious and venturesome attitudes of mind.

It is desirable that progressive practitioners and conservative laboratory workers pursue their labors in different ways because both are necessary although unlike each other; and there should be no attempt to convert either one to the other's methods; for when the influence of one very greatly predominates there is less progress, as was shown when loose empirical ways alone were used in the past. Then there was not as rapid advancement as since a careful scientific attitude has developed; and probably in the future if the conservative spirit encroaches too much upon the domain of practicing physicians, making them unwilling to try new things in emergencies which have no scientific foundations, progress may be retarded again from this opposite cause.

The strong influence which conservative methods exert now is seen in attempts to introduce more and more of the methods of laboratories into clinical practices; and the improved clinical facilities of specially equipped hospitals seem to owe their existence indirectly to past successes of careful workers in biological, chemical and physical laboratories. However, one has only to recollect the many inexplicable practical methods in daily use, the many valuable discoveries that have been stumbled upon accidentally, and certain hypotheses in chemistry, biology and physics which are unsupported by

ocularly demonstrable facts; as for example, the atomic theory, to realize the immense independent value of theories, random experiments, and simple observations even though they are not scientifically classified and substantiated.

Before turning to consideration of arthritic diseases the two phases, pure and applied science, have to be brought to mind, as some important features of treatments are unimportant from the standpoint of pure knowledge. Notably the element of time is a consideration in practice which does not hold the same prominent place in pure science; and because of such differences practitioners are obliged to resort to untried procedures when something has to be done immediately, and when more careful methods are unavailable from not having been perfected.

The effects of the present scientific attitude are seen in studies into joint lesions, their pathology, bacteriology, chemistry, etc. They are laboratory studies upon small points of the subject generally, and the conclusions from them are easily comprehended and accepted. Furthermore, commonly the evidence is of visible nature; as for example, microscopical preparations of pathological tissue, visible growths of bacteria upon culture media, test tube reactions, etc. Whatever can be seen is believed more readily than evidence incapable of such simple direct laboratory proof.

General principles and laws of a subject are the last points to be clearly comprehended in most instances, because they have to be deduced by tedious thinking and pondering upon the significance of collected confusing data more than upon the carrying on of interesting experiments. And the writer believes that *the obscurities of arthritic disease consist mainly of this kind, in lack of general conceptions; and that laboratory studies, or simple clinical ones, of themselves never will clear up the obscurities.* It seems true also that, supplementing the present tendency to deal with clear, definite, easily demonstrable problems, there is a tendency among patients to approve of, and to try things which are novel or simple.

These combined tendencies keep the activities of investigators and practitioners confined to phases of the problem which can be readily understood by all, and to attempts at clearing away obscurities and difficulties by enthusiastic search for additional new facts. This happens notwithstanding the discouraging circumstance that generations of physicians have been doing the same thing, and that each new additional fact or remedy soon loses its prominence while the obscurities and difficulties in treatment remain very slightly influenced.

Although it seems impossible to have too many accurate laboratory studies since each contributes its share to the total sum of knowledge, yet it seems true that these may be disproportionately numerous compared with critical analyses and attempts at systematizing data which already exist. What seems to be needed most now are not less simple laboratory studies but many more general ones.

There must be some persons who are willing to forego the pleasures of laboratory investigation and who are ready to spend their time in trying to work out much needed general conceptions and important underlying broad principles which are so obscure and so essential for advancement. It is only necessary to look at the rapidly accumulating data relating to arthritis and to the slight increase in effectiveness of its treatment to appreciate that much more attention should be devoted to practical aspects, the relief of patients, and the question arises how this may be best attained.

The most favorable conditions for treatment of arthritis: These exist when there is proper understanding of the nature of the trouble, and when there are suitable facilities for carrying on appropriate curative measures, but discovery and application of any special new remedy does not seem to satisfy the stated conditions. In most instances either there are faulty conceptions of the disease or deficiencies among therapeutic facilities which prevent highest efficiencies being attained, and measures consequently are used with many varying degrees of success with different patients.

The most complete equipments of large general hospitals sometimes are not used to greatest advantage on account of division of hospital work into special medical, surgical, orthopedic, physical therapeutic departments, etc. Because of these circumstances conflicting opinions arise regarding what constitute most appropriate measures, and physicians of each department are almost certain to emphasize unduly the merits of their respective methods, and to extend the use of them to some patients who presumably would do better under other courses.

With arthritic patients who demand many kinds and combinations of therapeutic procedures frequently, the delays in transference from department to department, and the differences of opinions, constitute an important factor in diminishing the percentage of those persons who are relieved.

Among large private sanitoria equipments often excel those of general hospitals but as they are conducted upon a business basis there are disproportionate developments not infrequently. The features that appeal most strongly to fancies of patients are likely to predominate and disagreeable ones to be minimized, or some special methods may be strongly emphasized by the physicians in charge.

Diminished effectiveness again is seen commonly in the general practice of medicine where, although physicians may possess adequate understanding of joint diseases, they may be seriously handicapped nevertheless in having only a few of the necessary therapeutic facilities at their disposal.

But most favorable conditions do not mean use of all good measures that have been described,

because these are far too numerous to be handled intelligently and skillfully. The best conditions seem to exist in securing selection of as many of the best as can be skillfully managed, and making this number as large as possible by gathering them together with an idea of greatest convenience and ease of employment into one place where they may be prescribed if desired by a single individual.

It seems they should include all important physiological varieties in order to deal successfully with the various physiological factors which regulate the health of joints, and whose defects act as causes for joint lesions. There should be representatives that may be used in treating vascular, nervous, mechanical, and external causes; namely, drugs, diets, surgery, orthopedic appliances, physical agents etc. Maintenance of an open-minded, balanced attitude, with readiness to use the various carefully selected facilities according to whatever kinds appear most appropriate, should be the aim of the physician. And the responsibilities should be left with single individuals who are properly qualified to institute the various kinds of treatment if avoidance of delays and undue emphasis upon special features are to be minimized.

Joint pathology, bacteriology, etc., must not be ignored, but on the other hand these phases of joint diseases should not be allowed to interfere with the commanding influence that knowledge of joint physiology and physiological actions of therapeutic agents should hold.

As an illustration, while it is interesting and important to have a mental picture of pathologic changes going on in joint tissues, it must be granted that defects in physiologic relations producing pathological changes can be corrected and relief secured without knowledge of the microscopic appearances of the diseased tissues. Relief may depend only upon removing the underlying causes which are acting.

It would be well if skill enough in recognizing physiologic defects could be acquired so that their correction might be possible before visible pathological changes occur. Knowledge of pathology is extremely important for complete comprehension of joint disease, but in regulating defective joint functions, physiology which deals with functions must hold first place, and all others ought to supplement and extend its commanding influence.

With such ideal circumstances as have been outlined it seems probable that progress would become much more rapid; and until such facilities and well balanced, comprehensive methods are instituted presumably there will continue to be slight advances as new measures are discovered with simultaneous slight retrogressions from the forgetting of old ones resulting simply in a changing of the field of activity from one phase to another without very greatly increasing the proportion of persons relieved. The probable truth of this supposition is apparent when consideration is given to the countless unsuccessful attempts of generations of physicians at discovering simple universally applicable remedies; and when the complex character of joint inflammations are thought of. From the nature of arthritis it is impossible theoretically to conceive of any single measure being efficient in more than a small percentage of the total number of cases, and if physiological conceptions are correct then theoretically there must be very many different therapeutic agents and this practically is found to be the case. Logically therefore greatest success will come from using the largest number of the better remedies skillfully in the manner that has been suggested.

With such an arrangement there presumably would appear then in the literature descriptions of combinations and formulae which were found to be most efficacious practically. And not only the various ways of combining and alternating different measures most advantageously, but also the important minor points of dosages, frequencies and lengths of administrations of remedies, the details upon which successes and failures so often rest, would be described and put into available form for others to use.

However, obscurities will be likely to continue indefinitely for those physicians who haven't time to familiarize themselves with the complexities of arthritic problems. The matter is a complex one, incapable of very great simplification, and attempts at doing so only lead to wrong conceptions that are soon upset, leaving greater uncertainty than before in the minds of the persons who held them.

Generalizations, critical analyses and broad comprehensive studies are the things especially needed now more than simple laboratory studies; and the new research hospital affiliated with the University of Cambridge in England, which has recently opened, offers promise of real advancement in treatment of joint conditions, as the subject of chronic arthritis has been chosen there for the object of investigation. And it is to be hoped similar institutions will be built upon this side of the ocean, with most carefully selected facilities and best qualified men in charge, for the subject is worthy of attention on account of its wide prevalence. With complete, convenient special hospitals devoted to arthritic patients, perhaps there will be many less failures from lack of appropriate remedies and from prescription of inappropriate ones. New measures then can be most advantageously studied, and profitable lines for future advancement indicated with the result that fewer useless efforts will be made than now based upon erroneous ideas.

A LIVING CENTENARIAN.—Mr. Tilden Pierce, of Plymouth, Mass., is said to have been born on Dec. 21, 1811. He takes a walk daily, and his general health is reported excellent.

THE EXCRETION OF FORMALDEHYDE BY THE KIDNEYS OF PATIENTS TAKING UROTROPIN: A STUDY OF BURNAM'S TEST.*

BY O. R. T. L'ESPERANCE, M.D., BOSTON,
Assistant in Genito-Urinary Clinic, Massachusetts General Hospital,

WITH INTRODUCTION

BY HUGH CABOT, M.D.,
Chief of Genito-Urinary Department, Massachusetts General Hospital.

THE extent to which the medical profession has come to depend upon formaldehyde—containing drugs as urinary antiseptics is perhaps greater than we realize. Their use has become a part of the routine management of all infections of the urinary tract except in the lower portions, and we hesitate even to examine a patient with instruments without the previous administration of one of these drugs. This dependence has resulted from work which clearly showed the ability of formaldehyde to destroy or inhibit the growth of the organisms commonly concerned in the urinary infections. The group of drugs, of which urotropin is best known, depend for their action upon formaldehyde into which they are decomposed in the kidney. We have assumed, and it now appears without sufficient warrant, that if the drug were decomposed by the kidney of one patient it would be decomposed by the kidney of any patient, and we have therefore assumed that we could regulate formaldehyde in the urine by the dose of urotropin by mouth. It has of course been noted that some patients with colon bacillus infection did much better on these drugs than other patients with a similar infection, but this we laid to the idiosyncrasy of the organism rather than to the patient.

The work of Burnam, shortly to appear, brings forward disquieting evidence to the effect that only about one patient in two is able to break urotropin up in such a way that any formaldehyde at all appears in the urine. If this experience is confirmed it means that little over one-half of our patients receive any urinary antiseptic at all, and that we have been relying at times implicitly upon a perfectly inert medium. It further means that until some new formaldehyde-containing drug is discovered, we must test the urine of every patient to whom we give one of this group of drugs before we assume that any benefit is to be expected from its administration. This work of Burnam's seems to me of very great importance, and as the work done in our clinic by Dr. L'Esperance seems to confirm his results, I think we should place much less reliance than we have been in the habit of doing upon this group of drugs as urinary antiseptics. Clearly their routine administration in typhoid fever must be accompanied by evidence of their reduction into formaldehyde in order to justify them in the practice. We must give over our implicit reliance upon them until such time as our brethren of the chemical and pharmaceutical laboratory produce some formaldehyde-containing compound which is reduced with certainty by the kidney. (H. C.)

The reason that the formaldehyde-containing drugs have not been investigated is not that they have been above suspicion, but because manufacturing druggists' claims and reports have upheld each other in the most minute details. That certain conditions influenced the action of the drugs was undoubted, but no reliable test was at hand to determine the facts. The test for formaldehyde commonly used was that applied for the testing of milk, and is so delicate that it will detect one part in 100,000. Formaldehyde to be of value as a urinary antiseptic, must be present in one part to 5000 or 6000.

Rather vague impressions have prevailed that the following were some of the reasons causing the variable results.

First. That the reaction of the urine was an important part in ability of the kidneys to decompose the drug.

Second. That the administration of an alkali, with or in combination, inhibited the action of urotropin.

Third. Variation and instability of the drugs of this group.

Fourth. Idiosyncrasy.

These reasons could not be affirmed or denied because of the absence of a reliable test, until the work of Dr. Burnam was presented at the meeting of the American Urological Association at New York in April, 1912. The tests used to detect formaldehyde in solutions were too delicate to be of clinical value. The Burnam test, as demonstrated by him and applied by us in the Genito-Urinary Clinic of the Massachusetts General Hospital to the urines of over 250 patients who were taking urotropin, we have found to be reliable, quickly performed, and within the comprehension of any physician.

The test is performed as follows: To about 10 cc. of suspected urine in a test tube at body temperature is added:

1. Of solution phenylhydrazine HCl 0.5% gtts. iii
2. Solution sodium nitroprusside 5% gtts. iii
3. Of saturated solution sodium hydrate a few drops poured along the side of the test tube.

As this latter solution diffuses throughout the urine in the tube, if formaldehyde is present (or the urine is positive), a deep purplish-black color is seen quickly changing to dark green gradually getting of a lighter shade of the same color, to finally, pale yellow.

With a urine that does not contain formaldehyde (or is negative) the color reaction is as follows: As the saturated solution sodium hydrate diffuses through the urine in the tube, a reddish color is seen gradually turning to light yellow.

Burnam's test applied to urine of patients taking urotropin has proved that only about 50

* Read before the New England Branch of The American Urological Association, March 5.

per cent. of these patients excreted formaldehyde. This important fact is constant under all conditions: age, sex, well or sick individuals, normal or pathological conditions of the kidneys, reaction of the urine—all these conditions do not influence the ratio of excreting and non-excreting kidneys, and we were able to foretell the results of a given number of specimens of urine before beginning the tests, with considerable accuracy. Repeated tests of the urine of the same patients, but at different times, always gave the same results, that is to say, negative urine in the original test showed the presence of formaldehyde even though the dosage was increased (60 grs. per day), or the reaction was changed (acid to alkaline or vice versa). No positive urine ever became negative under the same changes.

The time of the appearance of the drug in the urine is about one hour after ingestion by mouth; the earliest seen was thirty minutes, and the average was at about the end of one hour. The continuation of the excretion extended for from four and one-half to six hours, with maximum at about two hours. In view of these facts it is necessary, to get uninterrupted excretion, to repeat the drug every four hours.

No symptoms caused by the drug were reported by patients not excreting formaldehyde, a very noticeable and important fact. Of the patients showing formaldehyde in the urine by the Burnam test, five reported symptoms, and the severity of the disturbances varied from a slight hematuria and burning along the urinary tract to a vague malaise. All symptoms stopped with the discontinuance of the drug.

We are testing the urine of all the patients of the Genito-Urinary Department who are taking urotropin or formaldehyde-containing drugs as to the presence of formaldehyde. If the test is negative some other urinary antiseptic is prescribed. With patients going to some distance who are to return for instrumentation, a trial dose of urotropin is given and the patient requested to remain in the clinic to permit the testing of urine at suitable intervals (thirty minutes, one hour and one and one-half hours after taking). On the result of the test depends the continuation of this group of urinary antiseptics.

The Burnam test was applied to the urine of more than 250 patients taking urotropin by mouth. The urine of some patients received several tests at various times under variable conditions. The results of 250 urines were that 130 or 52 per cent. showed the presence of formaldehyde (or were positive); 120 or 48 per cent. did not show the presence of formaldehyde (or were negative).

Our deductions from the results of the foregoing tests and observations are confirmatory of Dr. Burnam's very important and valuable work.

CONCLUSIONS.

1. Formaldehyde appears in the urine in only 52 per cent. of patients taking urotropin.
2. Reaction of the urine of no importance.
3. Alkalies taken with or in combination with urotropin have no effect on excretion.
4. Duration of excretion of formaldehyde is about four to six hours.
5. Increase of dosage does not affect excretion in negative urines.
6. Urotropin practically symptomless in average dose.
7. The urine of all patients taking urotropin should be tested for formaldehyde.
8. Patients not excreting formaldehyde are symptomless regardless of the amount of urotropin taken.

For the outline of Dr. Burnam's paper and clinical material I wish to express my most sincere thanks to Dr. Hugh Cabot; and for their assistance, to Doctors O'Neil, Smith, and Barney, and at the Chelsea Soldiers' Home to Dr. Achorn.

Clinical Department

TWO CASES OF INJURY OF THE VENA CAVA DURING THE REMOVAL OF PYELONEPHROTIC KIDNEYS.*

BY ARTHUR T. CABOT, M.D., BOSTON.

MANY years ago I pointed out and taught students that it was often wise to open and drain large pyelonephrotic kidneys before proceeding to their final removal.

By this operation in two stages the dangers of the procedure are considerably diminshed. The subsidence of inflammation that follows the drainage brings about a great shrinking in the size of the tumor and some loosening of the adhesions to parts about; so that at the time of the final removal the deep parts, where the sac is in close contact with the vessels, are more accessible to hand and eye.

Since that time it has happened to me many times to remove these kidneys at one sitting where for one reason or another this course seemed wise.

In the course of these years, however, I have had two experiences which illustrate the dangers one must sometimes expect to meet in these operations. They are as follows:

CASE I. Isabella B., aged 35. Married and mother of six children, youngest ten months old. No family history of tuberculosis. Entered Massachusetts General Hospital April 15, 1905.

For past ten or twelve years has had much dull pain intermittently in right side of abdomen close to costal border.

Six years ago first noticed a lump in this region which has lately been increasing in size.

Micturition more frequent for past three or four years. Seven or eight times in day, once at night.

Urine seen to be cloudy for several years. No blood noticed.

Has lost some weight.

* Read before the New England Branch of The American Urological Association, March 5.

In right abdomen is a large elastic tumor extending from costal border well down towards pelvic brim and over to the middle line and filling also the lumbar region.

Cystoscopic examination shows jets of very cloudy urine from right ureter, clear urine from the left.

Segregation shows four times the quantity from left kidney as from right.

April 21, 1905. Operation. Kidney very adherent over upper, inner and posterior parts. Large veins in its posterior wall.

These were clamped and separated from the capsule. After the sac was removed it was found that one of these large veins was the collapsed vena cava.

It had a rent in its wall where the renal vein had been separated. This was closed by two silk stitches.

The adhesion of the sac was so close and firm that a considerable portion of the peritoneum came away upon it.

This was closed with chromic gut but beneath the liver there was a gap of about two inches where it could not be brought together. Wicks were so placed as to prevent the escape of the bowel through this aperture and after the wound was closed, a tight binder was put on to hold the deep parts in close apposition. Recovery was uneventful, the temperature never going above 100.5° F.

The fluid gave no growth and inoculation into a guinea-pig gave no result.

In one of the calyces of the complicated sac was a branched concretion.

Case II. Mrs. S. Seen Feb. 4, 1908.

She remembers that as a child she had some difficulty about her water.

Some years ago, after confinement, she had an attack similar to the present one, with pain in the right side, swelling of the kidney. It was thought at that time to be due to mobility of the kidney. Felt better in a recumbent position, with her hips raised.

A week ago the present attack developed, with continued swelling of the kidney and a good deal of pain in the side. Pain was acute at first, afterwards a steady ache. Temperature raised to between 101 and 102.

Kidney is enlarged, tender, extends down to about the level of the umbilicus and over to the middle line.

At this time the urine was slightly cloudy, with a rare leucocyte and one granular cast discovered.

On the 14th an operation was done. By a long incision from the rib down to the outer border of the erector spinae muscle, tumor was reached, trocar introduced, about a quart and a half of thin creamy pus was withdrawn. This left a large, flabby, collapsed sac with little appearance of kidney substance upon it. It seemed as if its removal ought to be easy and it shelled out without much difficulty until the inner posterior aspect was reached, where it was found firmly adherent to the psoas muscles and the great vessels, making the separation with the fingers difficult. This was done as carefully as possible but had to be without the aid of the eye, as it was high up and behind the sac. There was considerable oozing, which was stopped by packing. When the tumor was finally freed, with difficulty, and lifted into the wound, what appeared to be the pedicle was found to contain no vessels, only fatty tissue, which was tied and separated and the kidney lifted out. On removing the gauze packing there was extensive venous hemorrhage in the depth of the wound. Pressure was made with the fingers and the gauzes removed, when it was found that the hemorrhage occurred from a couple of small openings in the side of the vena cava, apparently where the renal veins had been torn across in removing the tumor. These were clamped and an attempt was made to suture the opening in the depth of the wound, but the patient's condition made this impossible. Clamps were therefore placed on the vena cava and when these were in position so as to control the hemorrhage, they included about half of that vessel.

Wound was closed with large drainage wicks down alongside of the clamps and a large dressing was applied so as to protect the handles of the clamps from pressure. The patient was very much exsanguinated and subpectoral saline infusion was given under both breasts, also a shock enema.

Dr. Whitney examined the specimen, which showed great dilatation of the pelvis and calyces, with no evidence of any ureteral opening. By microscope there was but little kidney tissue left. The sac was lined with granulation tissue. No tubercles were found.

Culture showed a pure culture of colon bacilli.

Patient remained in a serious, threatening condition,—due largely to anemia, with some fever—for at least a week after the operation.

An examination of the urine showed that it contained colon bacilli in considerable amount and the fever continuing, it was thought wise to prepare an autogenous serum from the urinary sediment. Immediately after the use of this serum was commenced the temperature quite markedly fell, and steadily improved until it reached practically normal. At the end of a week the clamps were removed from the vena cava. From this time on, slow but steady progress set in. An annoying circumstance was that the tissue under the left breast, where the subpectoral infusion had been given, sloughed quite extensively. This sloughing was a dry slough which showed very little tendency to separate. The other breast, also, showed some induration but never caused any sloughing.

The patient slowly gained strength, which was much hampered by backache due to relaxation of the sacro-iliac ligaments. The urine continued to hold bacilli of the colon group until early in May, when the urine finally became bacteria free. Over a year later, in December, 1910, no colon bacilli were found, although a few colonies of pneumococci or some closely allied organism were obtained, which seemed to probably come from some contamination.

In Case I. the condition of the kidney seemed to be the result of a calculus; in Case II. of some mobility of the organ associated with colon bacillus infection. Both cases illustrated the extreme difficulty of shelling out these suppurating kidneys and offer justification of the more conservative treatment of an operation in two stages in many of these cases. In both cases the separation of the outer part of the sac was so easy that I was encouraged to hope that the removal would be easier than it was.

I think moreover in selecting the operative procedure in these cases it is proper to remember that when the right kidney is affected there

is greater danger of injuring the soft-walled, yielding and non-palpable vena cava than there is in removing the left kidney, where the vena cava does not come in contact with the sac and the arteries can be readily made out.

The next most interesting feature was the ease with which the wound of the vena cava was closed, in the first case, where with a thin-walled abdomen the parts could be brought readily into sight, and how great the difficulty, on the other hand, in the second case, where we had thick dorsal muscles and a stout abdominal wall. Also, it was interesting to note how in Case II. with clamps including a large part of the wall of the vein, Nature succeeded in forming a cicatrix which adequately held the vessel when the clamps came away. In the second case, also, a point of secondary interest was the excellent action of the colon vaccine in bringing about a cessation of the fever and apparently in helping to a final disappearance of colon bacilli from the urine.

We were finally much interested in endeavoring to find an explanation of the curious dry slough beneath the left breast, in which the saline solution was given. While we were getting the patient to bed several assistants were preparing the machinery for subpectoral injection and something was said about putting a little adrenalin in the solution. The assistant who gave the solution thought that this adrenalin was not given but my nurse, who had charge of my materials, said that the adrenalin solution was used, in a very dilute solution. Certainly the character of the sloughing was different from anything that I have ever seen before and seems to be accounted for by the belief that some adrenalin was admininstered in this way. As it is not very uncommon to use adrenalin for this purpose, it seems worth while to put this case on record as an instance where perhaps the adrenalin produced unfortunate results.

THREE CASES OF UTERO-VESICO-VAGINAL FISTULA.*

BY ERNEST BOYEN YOUNG, M.D.

First Assistant Visiting Physician for Diseases of Women, Boston City Hospital; Instructor in Gynecology, Harvard Medical School.

ALL acquired vesical fistulae connecting with the genital tract, aside from those arising from foreign bodies in the bladder and vagina, accident, or the ravages of malignant disease, are the result of trauma during labor.

The last-mentioned may be divided into two classes: first, where necrosis of the soft parts results from long-continued pressure of the head in a small pelvis; second, those cases in which the anterior surface of the uterus is split to a greater or less degree, and with it the bladder, during extraction of the head, or as the result of some operative procedure.

* Read before the New England Branch of The American Urological Association, March 5.

In the past, when the artificial termination of labor was less commonly undertaken than today, fistulae arising from sloughs were more common; but at the present time, exactly the reverse appears to be true.

All the accidents reported in this article resulted from high forceps extractions and they may serve to remind us of the dangers which happen in improperly conducted deliveries.

As the two types mentioned above differ in etiology, so they also differ in their initial manifestation and in healing. Thus the sloughs separate slowly and the fistula appears after the lapse of a number of days; while with tears, the incontinence is immediate.

Such fistulae as result from gangrene present more scar tissue and large defects, and so far as the experience of the writer goes, most often affect the vesico-vaginal septum, while the tears, starting in the anterior part of the cervix, invade the uterine wall to a greater or less degree and then extend to the bladder and even the urethra, with retraction of the tissues.

If the urethra is involved, the consequences are extremely serious, as the sphincter can seldom be repaired, although serious tears of the anterior surface of the uterus often heal kindly and to an amazing extent. Luckily, the laceration usually ends before reaching the vesical sphincter, owing to the tendency of the vaginal walls to roll outward and the giving way of the perineum.

Small fistulae of the vesico-vaginal septum, from both causes, may close spontaneously or become so small as to give little trouble, and while the uterine substance may fully heal, in the cases with extensive laceration of the anterior uterine wall and bladder, a small fistula usually persists and the uterine scar is thin.

CASE I. I. K. Married; age, 36 years. In December, 1908, instrumental delivery at full term, the child living but a few hours. Two weeks after labor was admitted to the Boston City Hospital with an abscess of the left broad ligament which was discharging slightly through a tear of the cervix extending into the left vaginal vault. Temperature 101; pulse 99. The abscess was drained through the posterior cul-de-sac and on Jan. 25, the patient was discharged with the wound nearly healed, but with some induration in the pelvis.

On March 5, 1910, the patient was again delivered of a full term child, with an ossified head, after much difficulty, the "doctors working all night."

On March 5, 1910, she was again admitted to the hospital with a fresh tear extending into the left broad ligament for two inches. The symphysis pubis was separated for three fingers' breadth and the prevesical space opened into the vagina, allowing the entrance of the finger for three inches.

There was a median tear of the whole anterior surface of the uterus, the whole vesico-vaginal septum and the proximal half of the urethra.

The vagina was irrigated and a symphysiotomy belt applied. The general condition was fair. The vagina was irrigated daily and there was no sepsis.

March 30 an x-ray showed the symphysis separated three-quarters of an inch.

March 31, examination showed the mucous membrane of the bladder rolling downward into the vagina—in fact no bladder or vesical sphincter—and the proximal half of the urethra open into the vagina.

The uterine tear extended in the median line through the cervix and anterior surface nearly to the fundus with the bladder open into its cavity for a like distance, and adherent to the sides of the uterine tear. At one point the wall of the uterus had healed for about one-half inch and above this the cavities of the uterus and bladder again connected. (See diagram, Case I.)

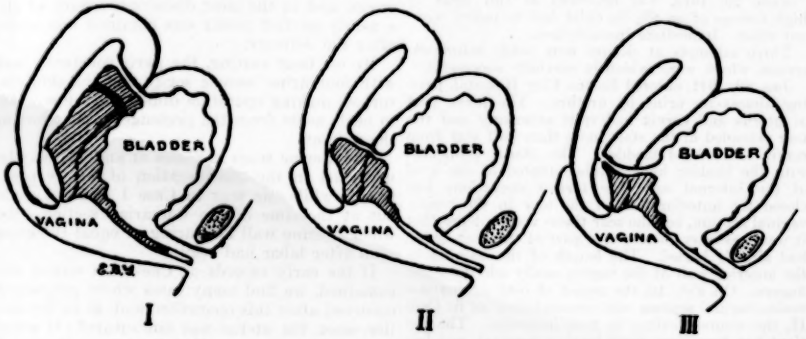
On November 23, patient again appeared with the small fistula open, but admitting only the finest probe. This was successfully closed and has remained so since.

Control of the urine has never returned and can hardly be hoped for, under the circumstances, without some further operation.

The perineum is at present relaxed and somewhat lacerated, but this occurred at the time of the first pregnancy. The uterus is in good position, freely movable, and the appendages apparently normal.

Further note:—This patient became pregnant for the third time, and although arrangements had been made for her entrance to our service, labor came on unexpectedly, and she was delivered by a Caesarian section, performed by Dr. L. R. G. Crandon, Oct. 13, 1911.

Dr. Crandon states that he noticed no difference in the thickness of the uterine wall at any point.



SHADED AREAS INDICATE THE PORTIONS REPAIRED.

Operation—March 21, 1910. The bladder was dissected from the face of the uterus except near the cervico-vaginal junction and the small isthmus of uterine and bladder tissue was cut away to reach the upper sinus.

The uterine wall was then sutured separately from the fundus to the internal os and likewise the bladder; each bladder stitch inserted into the vesical wall in the usual manner, but also including a small portion of the uterine substance to close the space between bladder and uterus.

At the level of the cervix, bladder and cervix were united by one set of sutures, the edges of both being denuded together after excising a tab of cervical tissue between the median tear and that into the left broad ligament.

The whole anterior wall of the vagina and the edges of the bladder and urethra were united by two sets of catgut sutures,—one for each structure—and bladder drained by retention catheter. About a week later, a small fistula appeared in the anterior part of the vaginal scar, from which was extracted a thin plate of bone, about a half-inch in diameter, which had worked down from the symphysis between bladder and vagina. To remove this, the opening had to be increased in size. On May 3 the constant drainage was removed, and but a small pin-hole fistula remained on May 23, when the patient was discharged. Except for the disturbance due to presence of the flake of bone, the wound healed by first intention.

On June 28, the patient again entered, and after a second attempt to close the small fistula, was discharged apparently fully healed on August 2.

Case II. M. M., married; 37 years of age. Well developed and nourished woman. Five normal labors. Pelvis normal.

Instrumental delivery in April, 1910, followed by immediate incontinence. Several operations for closure were performed previous to entrance, the exact date and nature of which it was impossible to learn.

On June 14, 1910, entered Boston City Hospital with urine discharging into vagina and passing no urine through the urethra.

Bladder examination showed a fistula connecting with the uterine cavity just above the internal os, and from this point the tear originally extended through the cervix anteriorly and along the anterior vaginal wall and base of bladder, one-half the length of the vagina.

The uterine tear had originally extended farther up the anterior wall, but had healed to a joint just above the internal os, where the uterine cavity and bladder connected. The uterine tear was unhealed from this point downward and the fistulous opening could be seen in the bladder with the cystoscope.

July 2d. Operation under ether. In this case the bladder was not separated from the cervix, but the united edges of both uterus and bladder denuded and closed with but one set of sutures.

The anterior cul-de-sac was then brought together, burying the sutures above. The vaginal portion of the cervix was then repaired. After the scar tissue was removed from the vesico-vaginal septum, an opening about one and one-half inches long remained, which was closed in the same manner as in the first case reported. The bladder was drained for one week and the wound healed by first intention. There has been no further trouble.

CASE III: E. F., married; 36 years of age. Five normal labors; the fifth instrumental at seven months.

June 29, 1910, was delivered at full term by high forceps of an 8¾ lb. child face to pubes, without ether. Immediate incontinence.

Three attempts at closure were made before entrance, which were evidently partially successful.

Jan. 29, 1911, entered Boston City Hospital, passing almost no urine by urethra. The lower part of uterus and cervix had split anteriorly and the tear extended at the start more than half way from cervix to neck of bladder. The uterus connected with the bladder by a fistula situated at the level of the internal os. The former operations had closed the anterior part of the tear in the vesico-vaginal septum, but the scar tissue was so dense that it was necessary to reopen a part of the rent which had already healed. The length of the opening in the anterior wall of the vagina easily admitted two fingers. On Feb. 10, the repair of both uterus and vesico-vaginal septum was accomplished as in Case II, the wound healing by first intention. The patient has been seen since leaving hospital, and has had no further trouble. In this case, as in the preceding, the fistulous opening in the bladder was seen through the cystoscope.

These cases are quite remarkable for the surprisingly little disturbance which resulted from extensive injuries.

In Case I the manipulations extended over several hours and the pelvic tissues were extensively opened up by the tears in the uterus and the separation of the symphysis.

The injuries in Cases II and III were less severe, but of the same type as in Case I; and in Case III, happened without anesthesia.

All these lacerations apparently started at the internal os and spread upward into the uterus and downward into the vesico-vaginal septum. As the labors in Cases I and III were protracted, there was probably a contraction ring.

In Case I there was a previous tear leading to the vaginal vault, and as this did not extend farther, it seems fair to assume that in this, and probably in the other two, the median position of the cervical tear was due to a faulty line of traction, which burst the anterior wall of the resistant lower segment against the back of the symphysis.

The contraction ring, flat pelvis, and spreading of the symphysis in Case I; and the faulty position in Case III, all added to the unfortunate result. As Case II did not know what happened, it was impossible to get exact data.

None of these women suffered from sepsis.

Immediate operation, in such accidents as Case I, is inadvisable and dangerous. The tissues should be allowed to drain.

In Cases II and III, immediate operation is also inadvisable, but might be attempted with more hope of success.

Many have counselled waiting for three or six months in every case before attempting closure; but this would seem much longer than necessary in the tears, while it is evidently best in the fistulae resulting from pressure necrosis.

All of these patients had operations, undertaken with more or less success, after a few weeks, and in the most disastrous injury of all, a nearly perfect result was obtained two weeks after the delivery.

By too long waiting, the parts constantly wet with foul urine become soggy and the skin disturbed, making operation difficult and less likely to heal; aside from the prolonged discomfort to the patient.

The uterine scars in Cases II and III may be neglected in the consideration of future pregnancy, while the scar in Case I was not made out at the time of the Caesarian section,—the whole uterine wall appearing of equal thickness even after labor had begun.

If the early records of Caesarian section are examined, we find many cases where pregnancy occurred after this operation, and, as in the earlier cases, the uterus was not sutured; it seems reasonable to suppose that the uterus in Case I was fully as firm as those which were unsutured, even though the operation was a secondary one. This woman, however, was a fit subject for Caesarian section, and should not have been allowed to go into labor.

Green (BOSTON MED. AND SURG. JOUR., vol. CLXII, p. 669) has just reported a case of normal delivery in a woman with a uterus sutured for rupture at the preceding labor, and the writer has just seen a normal delivery in a woman from whom it was necessary to remove a six months' foetus by vaginal Caesarian section. In this instance the front wall of the uterus was incised.

It is often extremely difficult to bring the utero-vesical fistula within reach, especially for suturing.

In Cases II and III a fine silver wire probe was passed from the bladder through the sinus. The probe on striking the uterine wall was deflected downward and entered the vagina. With one end protruding from the urethra and one from the vagina, traction was possible, which made possible the careful excision of the sinus, helped to bring the upper portion of the wound within reach, and kept the parts in proper position during the insertion of the sutures.

In the repair of all cases of utero-vesical fistulae, it is a distinct advantage not to separate bladder and uterus except where necessary, since the firm uterine tissues hold the parts in better apposition and the sutures cut less than in the soft vesical and vaginal walls.

The writer has used silver wire, silkworm gut, silk, horsehair and catgut in various combina-

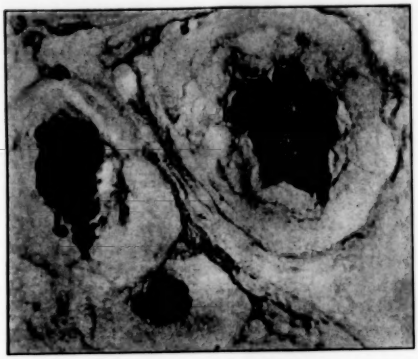


FIG. 1. Mucous Cancer of Breast.



FIG. 2. Bladder, Low Power.



FIG. 3. Bladder, High Power.

tions, for the repair of vesical fistula, but the round needle threaded with dry catgut, of the largest size which will follow the needle, has proved best; as the catgut swells and fills the needle track, cuts less, and appears better borne by the tissues.

It is necessary to remember that gentle handling of the tissue to avoid edema, elimination of scars, care in regulating the tension of sutures, and accurate approximation of the parts without undue strain are the chief points upon which success depends.

MUCOUS CANCER OF THE BLADDER.*

BY A. L. CHUTE, M.D., AND A. H. CROSBIE, M.D., BOSTON.

CLINICAL REPORT.

BY DR. A. L. CHUTE.

On Sept. 22, 1911, I saw the subject of this paper a man 39 years old, who gave the following history:

Measles as a child. For some years "nervous indigestion" for which he had been very carefully studied and no physical basis demonstrated. Had been better of late.

In February, 1911, he passed a little bloody material in his urine. It was thought it might indicate a stone in his bladder and a radiograph was taken. This was negative.

In May, 1911, some discomfort referred to his bladder, noticed especially when he was on his feet a good deal. On July 6th frequent urination accompanied by clots, passed clots five times on this occasion, as much as one-half pint each time. Ten days later passed blood once more. Rested and had expectant treatment till last of July, when he began to go to business occasionally.

Early in September he began to pass small clots occasionally or little blood stained bits of tissue; one urination would be clear, the next bloody. Also had a little pain on urination now and again.

The patient was one of the most nervous individuals I have ever seen. Examination of his prostate, loins and reflexes was negative. Urine transparent; specific gravity 1023; no albumin; no sugar; urea 1.77%. Bladder would hold a fair amount of fluid. A cystoscope was passed and showed nothing abnormal in the lower segment of his bladder. Near the vertex of the bladder, and a little nearer the right than the left, there was a mass that appeared as large as a quarter. The center was necrotic and the edges more or less finely branched. It did not have the typical appearance of an infiltrating bladder growth, nor on the other hand was it typically papillomatous; it was suspicious enough so that early operation was strongly advised.

On October 5, 1911, with the help of Drs. O'Neil and Crosbie, I cut down on this patient's bladder. I started with the intention of making an extraperitoneal resection. When I had gotten the bladder well exposed extraperitoneally, I opened it and could feel near the vertex a very suspiciously hard mass the size of a large plum. The peritoneum was adherent to the bladder at this point so that extraperitoneal resection was out of the question. The peritoneum was opened and the adherent part of it excised with bladder wall. The mass removed was about 2½ inches by 1½ inches, and in the fresh specimen gave a fair margin of normal mucous membrane on all sides. The bladder was sewed up in three layers. A drain was carried down behind the bladder and a retention catheter placed in the urethra.

In this case I did not put a suprapubic drain into the bladder. It would have been wiser to have done so, for on the sixth day the catheter became obstructed and there was some leakage along the wick that had been carried down to the posterior cul-de-sac.

This patient made a slow recovery, finally healed and left the hospital the latter part of November.

He went back to his business and was fairly active for a time. A few weeks ago he began to have pain, frequency and a somewhat turbid urine. For a time bladder washings relieved him. A few days ago his physician told me that he had a temperature, with pain referred to his left loin, also tenderness there. There also appeared recently a vague induration in the suprapubic region. There have been found in the urine a number of large cells showing a division of the nucleus. It seems reasonably certain that this patient has a recurrence of his growth that is already extensive enough to interfere with the left ureter.

[Oct., 1912. This patient shows a definite recurrence of his growth involving both bladder and abdominal viscera.]

PATHOLOGICAL REPORT AND LITERATURE.

BY DR. A. H. CROSBIE.

The subject of mucous cancer was brought to my attention by a pathological specimen sent to me by Dr. Chute for examination.

Examination of the tumor showed a firm mass, weight 50 grams, measuring 5 by 7 by 2½ cm., with a border of 1 cm. of normal bladder wall. The tumor was elevated both on the peritoneal and inner side of the bladder wall. On the inner surface there was an ulcerated area 3 by 4 cm. in diameter. On section the mass was semitranslucent and of a gelatinous character.

Microscopical examination showed the whole tumor mass to be made up of nests of cylindrical goblet cells arranged in alveoli. These epithelial cells had infiltrated the whole bladder wall from the mucous membrane to the peritoneum. The alveoli were filled with mucus and there was a great deal of mucus all through the surrounding tissue. Frequently alveoli were seen, such as the one in the photograph presented, which had ruptured and poured out the mucus into the surrounding tissue. In the low power photograph one may see a large ruptured alveolus pouring out its mucus while close by is a group of small alveoli presenting a much more malignant appearance. The high power photograph shows that the cells are goblet or mucous cells.

In this case the cancer looks identical with those found in the rectum. The mucous cells, their adenomatous nature and all is exactly such as one would expect to find in the rectum. This form of cancer as a rule is very malignant.

The term mucous cancer is applied to a group of carcinomata in which there is a production

* Read before the New England Branch of The American Urological Association, March 5.

of mucus formed either from the epithelial or from the stroma. Other terms used are gelatinous, and colloid cancer. Colloid is not good as the substance found in these cancers is not true colloid but does give the reactions for mucin. Delafield and Pruden say that "The cells of certain carcinomata, especially those of the gastrointestinal tract may develop a translucent gelatinous material which accumulates within the cells. These tumors often present an alveolar structure with the lumina of the alveoli filled with mucus which the cells have secreted. The mucus can be seen in the protoplasm of the cells as large translucent droplets. The mucus is usually pushed to one extremity of the cells. The cells of this type are as a rule cylindrical. The droplets are seen in the end of the cell protruding into the alveoli." In this description Delafield and Pruden are apparently describing the ordinary mucous cancer of the intestinal tract. No mention is made of another type of which I will speak later.

Of these tumors Bland Sutton says, "The commonest form of degeneration in cancer is known by the meaningless term of colloid degeneration. The epithelium in the cell column becomes changed into a structureless material resembling jelly. In many situations, particularly the stomach and the breast, this change is prone to occur."

Ziegler says of these: "The production of mucus in carcinomata occurs especially in the gastrointestinal tract. The mucous products first collect in the lumina of the alveoli after the manner of gland secretion. Later the border cells surrounding the mucoid material are broken through and the mucus is pushed out, forcing itself through the surrounding tissue. In many cases after an alveolus has thus been ruptured the epithelial cells disintegrate, leaving only the mucus. This type is to be distinguished from the carcinoma myxomatosum in which the myxomatous degeneration of the connective tissue cells between the cancer nests."

The only place that I can find record of these cancers occurring is in the breast, in the intestinal tract and in the bladder wall. As most of these cancers are composed of goblet or true mucous cells we would expect to find them only in organs which have a mucous membrane containing mucous glands, as in the intestinal tract. In the breast there are no such glands and we would not expect mucous cancer. However, when we come to study the form of mucous cancer of the breast we find that it differs from the one found elsewhere.

In the breast the mucous cancer is the least malignant of the breast cancers. Cases frequently go several years without the formation of metastases. The character of the mucous cancer of the breast is decidedly different from the ones found in the intestinal tract and bladder. In the breast the epithelial cells apparently do not enter into the formation of the mucus. The mucus is formed by a degeneration of the stroma. There are nests of epithelial cells, surrounded by mucus and a little connective tissue. Frequently the epithelial cells are arranged in alveoli but the alveoli do not contain mucus. There is a tendency for the epithelial cells to disintegrate, probably due to lack of sufficient nourishment brought about by the presence of the surrounding mucus.

Dr. Whitney suggests that the epithelial cells in these cancers may produce a toxin which causes mucous degeneration of the stroma. The mucus in turn reacts on the cells by cutting off their nourishment and thus inhibiting their growth.

The mucous cancers found in the intestinal tract are usually different from the ones in the breast. In these the epithelial cells themselves produce the mucus. Occasionally the same type is found here that is found in the breast. As a rule the epithelial cells are arranged in alveoli and the cells are cylindrical goblet cells filled with mucus with the nucleus pushed to one end, the end away from the lumen of the alveolus. Frequently these alveoli burst and the mucus is pushed out through the surrounding tissue. Often after the mucus has passed out and surrounded the alveolus the cells disintegrate, leaving nothing in places but the mucus. The mucous cancers of the intestinal tract are much more malignant than the ones in the breast and do tend to metastasise. This is especially true of the ones in the rectum, which is a frequent seat for these tumors.

Strange to say, the urinary bladder, which is supposed to contain no mucous glands, is occasionally the seat of primary mucous cancer.

There are a few similar cases reported in literature, mostly by Germans.

Rosenbusch had a case that came to him with a history of hematuria for ten months. She died soon after of pulmonary embolus. The tumor here was the size of the fist, situated in the posterior wall of the bladder. The bladder was adherent to the uterus and to the intestines. There was extensive ulceration of the mucous membrane over the tumor. Nearly all of the bladder wall was infiltrated and thickened with the mucous containing tissue. They were extensive metastases in the retroperitoneal lymph nodes. Microscopical examination showed the tumor to be made up of masses of epithelial cells, many forming alveoli and in all stages of mucous degeneration. The alveoli were filled with mucus and sometimes with masses of degenerated epithelial cells. The connective tissue and muscle between the epithelial masses was infiltrated with free mucus.

Sharp reports a case of primary colloid carcinoma of the bladder in which the whole bladder wall was thickened and had a semitranslucent appearance on section. Microscopically the submucous tissue and nearly the whole thickness of the muscular coat was infiltrated with colloid material arranged in alveoli. In a few of the alveoli the bloated outline of the original cells

could be discerned. Most of the mucous membrane had been removed by ulceration. Nearly the whole bladder wall was thickened and the lumen was much reduced.

We meet with a similar case reported by Sauter. In his the disease had lasted two years. The whole bladder wall was thickened by colloid cancer.

In 1883 Sperling reports a case of primary mucous cancer of the bladder involving the uterus and vagina. The nature of the epithelial cells is not given.

Ehrich had a woman 44 years old who had extrophy of the bladder which was involved with mucous cancer. The epithelial cells here were cylindrical goblet cells forming alveoli which were filled with mucus.

Posner in 1883 had a patient 46 years old with a mucus cancer on the posterior wall of the bladder the size of an orange. The nature of the cells is not stated.

Stoerck reports one with a flat tumor size of a dollar arising from the trigon. The alveoli were filled with mucus and the cells were goblet cells. In some places the epithelial cells had entirely disappeared, leaving nothing behind but mucus.

Zausch reports two cases. One with a tumor in the right side of the bladder and showing no metastases, while in his other case there were retroperitoneal metastases.

Haake describes a mucous cancer in the fundus of the bladder of a man 72 years old. This case has a nodule of similar type in the prostate.

Rudolph Bayard reports one case in which the tumor corresponded closely to the rectal carcinoma.

Although most observers agree that there normally are no mucous glands in the bladder they do admit that frequently glands are found, especially in the neck of the bladder near the urethra. Some hold that these are strayed urethral glands while others think that they are aberrant prostatic glands.

In determining why mucous cancer should appear in the bladder it strikes me there are three possibilities to be considered. They may arise from the strayed urethral glands, from the aberrant prostatic glands, or from a faulty embryological development.

In describing the develpoment of the bladder in the embryo Piersol says, "During the early life of the human embryo the end segment of the gut is dilated into an elongated chamber, the cloaca, from the upper end of which the alantois passes forward and on the sides of which open the Wolffian ducts. The dilated alantosis forms the body and summit of the bladder and the urachus, the lower end of the bladder into which the ureters open, is derived from both the alantosis and from the cloaca."

It is easy to understand therefore how cells which should properly form rectal mucous membrane might become cut off and lodged in the bladder wall. When these cells become cancerous one may see why they should retain the characteristics of the cells of the rectal mucous membrane.

I wish to express my thanks to Dr. William F. Whitney and to Dr. Arthur L. Chute for their helpful suggestions.

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Reports of Societies.

AMERICAN UROLOGICAL ASSOCIATION.

MID-WINTER MEETING OF THE NEW ENGLAND BRANCH, BOSTON MEDICAL LIBRARY, MARCH 5, 1912; AND SPRING MEETING, BOSTON, MAY 21, 1912.

PRESIDENT, DR. PAUL THORNDIKE, BOSTON.
SECRETARY, DR. R. F. O'NEIL, BOSTON.

PRESENTATION OF INSTRUMENTS, DR. E. GARCEAU.

SOME NEW CYSTOSCOPES AND A URETER CATHETER FOR COLLECTING THE TOTAL OUTPUT OF URINE FROM ONE KIDNEY.

DR. GARCEAU: The instruments which I am showing tonight were devised to collect the total output of urine from each kidney during an examination to test the work of each.

The catheters heretofore employed for this purpose have not been satisfactory. Those with bulbous enlargements at the ureteral end do not always succeed in entering the canal and they do not always completely block it even when they do enter it. Those having the small inflatable rubber balloon at the ureteral end which can be inflated after the catheter is in position are open to the objection that the rubber soon deteriorates. The commonest method has been to pass with a cystoscope two No. 8 French catheters, one on each side, and to trust there will be no leakage alongside the instruments. Leakage is detected by means of a catheter laid in the bladder. Larger double cystoscopes which might take larger catheters are not feasible on account of their size. With a No. 8 French catheter in each ureter leakage alongside the instruments occurs in 48 per cent. of the cases. It amounts to 20 cubic centimeters or less, in 21 per cent.; 20 to 50 cubic

centimeters in 8 per cent.; 50 to 100 cubic centimeters in 3 per cent.; and 100 cubic centimeters or more in 16 per cent. These figures are for the two-hour polyuria test in which the catheters remain in place during that length of time.

The importance of collecting the total output of urine from each kidney cannot be overestimated in functional renal examination. If we would deduce anything of value from delicate tests we must have the exact amount. It is sufficient for our purpose if we can be sure that we can collect the total amount from a single kidney, for by laying a catheter in the bladder we shall get the urine from the other side. This will be especially appreciated in those cases in which, from pathologic, anatomic, or congenital causes, but one ureter can be catheterized. I have known of a single ureter to be catheterized in a case of solitary kidney; leakage occurred alongside the catheter; the urine found in the bladder was taken for urine from the opposite kidney; the only kidney was removed by the operator; and the patient promptly died.

The catheter which I am about to show you was made by Eynard,[1] of Paris, and has a length of 90 centimeters. It has a caliber of No. 11 French at its outer end and this caliber is maintained to within 20 centimeters of its opposite end. From this point it tapers gradually and progressively to the tip of the instrument, where it has a caliber of only No. 6 French. This end is opened and has a flute tip; below the tip there are two additional openings through which urine may enter. It is easy to see that, once introduced, the catheter fits into the ureter exactly like a conical cork into the neck of a bottle and completely blocks the canal, so that all the urine coming from the kidney must go through the instrument. A catheter laid in the bladder collects the urine from the opposite side. There are three more decided advantages obtained by the use of this catheter; one is, that the capacity of the renal pelvis may be exactly determined by injecting liquid into it through the catheter; the second is that strictures at the lower end of the ureter may be safely and easily dilated; the third is that a rapid diagnosis of the following conditions can be made,—(1) solitary kidney, (2) kidney inactive from former disease, (3) blocked ureter. Solitary kidney is diagnosed by finding urine on the catheterized side and none in the bladder; we should expect no history of renal pain or other symptoms on the side in question; we should also not be surprised at a smooth bladder without an opening in the spot where normally the ureter orifice is found. A kidney inactive and non-secreting is diagnosed by the previous history. If the patient has had renal pain, if there has been tumor, and especially if there has been abundant pyuria in former times, we may diagnose some suppurative process, very commonly tuberculosis, which has gradually destroyed the kidney and has rendered it inactive. Blocked ureter may be of the acute or chronic variety. The active form is usually due to stone. Here the fulminating symptoms, colic, general disturbance, and local tenderness, leave no doubt as to the diagnosis. In the chronic form, also generally due to stone, the X-ray will be of assistance; also a history of previous pain in the kidney, together with other localizing symptoms.

In order to use this occlusive catheter special instruments had to be made. They are three in number. The first one was made by Collin[2] of Paris. It is nothing more than a Brenner instrument slightly modified. The catheterizing tube is made to take a No. 13 French catheter and it is further modified by having a smaller beak and a removable elbow at the ocular end of the catheterizing tube which serves to deflect the catheter as it enters the lumen. I have used this instrument with success in both sexes but it is more serviceable in the female. It cannot be used in males with hypertrophied prostates, nor can it be used in cases in which there is marked abnormality of the bladder wall.

In order to overcome the objections of this first instrument, I devised[3] an indirect vision cystoscope which I show you here. With it any ureter may be catheterized. The instrument consists of two parts, the upper one being the catheterizing apparatus, the lower, the optical. The under surface of the catheterizing tube is grooved and the groove fits tightly into the lower optical part when pressed into it. The two pieces together form the single instrument. There is a toothed wheel working on a toothed plate which is soldered onto the catheterizing tube. By turning this wheel the upper or catheterizing part is made to slide at will on the lower or optical part in either direction. When the instrument is to be introduced into the bladder the upper tube is made to slide by means of the screw towards the beak of the instrument as far as it will go; this makes its introduction into the bladder an easy matter. Once in the bladder, however, the screw is turned in the opposite direction; this causes the upper tube to slide towards the operator, and uncovers the prism in the optical part which is situated near the beak in the usual place. This instrument takes a No. 11 French and is manipulated as most of the modern instruments are by means of a shutter which works with a screw.

The last instrument which I show you here is one which was devised by the Wappler Manufacturing Company of New York to take my catheters. It consists of two parts, an outer sheath, and a catheterizing and optical part combined; the latter fits into the former. The novel features of the instruments are these; the vesical lens is at the heel of the instrument and not on top as in most indirect cystoscopes; this lens points directly downwards towards the base of the bladder; the image is thus an indirect one, but it is made direct by appropriate lenses so that the observer sees the bladder exactly as it is; the shutter which deflects the catheter is likewise situated on the under side of the instrument, at the heel, instead of on top, thus giving a great advantage over other cystoscopes because the catheter does not have to be deflected very much. To manipulate the instrument, the catheterizing apparatus is removed from the sheath and an obturator introduced which closes the aperture at the heel. The cystoscope is now passed into the bladder, the obturator withdrawn, and the catheterizing apparatus armed with the catheter introduced. The ureteral opening is found and the catheter shoved into it. The catheterizing piece is now removed from the sheath and a small sized simple catheter is passed into the bladder through the sheath to collect the urine from the opposite kidney. The sheath is withdrawn leaving the ureteral and vesical catheters in place.

I have used this instrument with satisfaction. Not only will it serve to catheterize easy ureters

[1] See BOSTON MEDICAL AND SURGICAL JOURNAL, 1910, vol. clxii, p. 745, and *Berlin. Klin. Wochenschrift*, 1910, No. 23, June 6, p. 1091.

[2] See *La Presse Médicale*, Paris, 1911, No. 10, page 91.

[3] See *Berlin. Klin. Wochenschrift*, 1911, No. 16, vol. xlviii, p. 716.

but difficult ones as well. It will be found excellent in prostatic cases, for the shutter will deflect the catheter so that it will enter at any angle. The lenses are such that they will reflect an image even when the object is directly upon the vesical lens. It is thus an excellent urethroscope.

The No. 11 French occlusive catheter is quite large enough for ordinary ureters, I mean those in which there is no abnormality. When, however, the orifice has been dilated in consequence of disease as is not uncommon, for instance long standing suppurative disease of the kidney, the No. 11 catheter will be too small and urine will trickle along the side of the instrument. In these cases, which are fortunately rather rare, it is necessary to use a No. 13 catheter of the same design. The first instrument which I have described, the Brenner instrument, takes this No. 13 with ease and it is feasible to use this cystoscope in most females and in many males.

I have used these instruments long enough now to feel sure that they will do what it is intended that they should do. The catheter is really an occlusive catheter as I have proved by numerous experiments. The last instrument which I show is a female urethroscope.

The urethroscopes which have commonly been in use are in my experience unsatisfactory. The spring-wire variety which attempts to open the urethra by expansion of its walls does this imperfectly and at best discloses only a portion of the canal. I have not found the tubular endoscope very satisfactory because it does not seem to me to be very well adapted for the purpose. Only a small portion of the urethra is seen at one time and then in an unnatural condition with the canal presenting as a rosette at the end of the tube. The old Skene urethroscope consists of two parts, an outer glass tube of very small caliber and a small mirror mounted on a shaft which slides back and forth in the glass tube. By means of reflected light thrown into the tube by a head mirror a very small portion of the urethra is brought into view by means of the small mirror. I have never found this instrument satisfactory because it is too small and the parts illuminated are not sufficiently brought into view. I have modified the Skene instrument in two ways; firstly by using much larger urethral glass tubes, ranging from No. 30 to 36 French; secondly by employing a different method of illumination. These tubes, which are made by Codman & Shurtleff, of Boston, have conical ends and are easily introduced into the female urethra usually without preliminary dilatation of the meatus. If the meatus is too small it is easily dilated by means of a conical dilator, first cocainizing the canal. For illuminating the canal a small electric bulb is used which is mounted on the end of the shaft. This is introduced in the glass urethral tube. I have found that this method of illumination is excellent. The whole urethra can be inspected perfectly well and all parts are accessible. Even the vesical neck can be seen with ease.

It was at first feared that areas of pathologic congestion would be temporarily obliterated by pressure of the tube but it was found that this was not the case.

DISCUSSION.

Dr. H. Cabot: I have always assumed that in doing the experimental polyuria test you had to deal with the total amount of both urines. I think it would be somewhat difficult to leave two catheters of the size shown in the male urethra for I have found some difficulty with the smaller catheters. I am not sure that it is absolutely essential to block both ureters, assuming that both ureters are of the same diameter. Of course, if one is dilated and the other is normal, it makes a difference, but I think that the leakage is likely to be symmetrical on both sides, if there is a leakage on one side, there is a corresponding one on the other. I think surgeons in this country are tending to abandon this test as cumbersome, liable to error, and difficult to interpret. I would like to know Dr. Garceau's experience in regard to leaving these catheters in the urethra.

Dr. G. O. Clark: When I was in Paris, 1909, it was the custom when possible to make the most of all available material, so that frequently it happened that a patient's kidneys were catheterized not only once but several times, and each assistant would make his individual notes on the case.

As Dr. Garceau has said, there was almost regularly leakage along the inlying ureteral catheter; but invariably, as a control, a urethral catheter was inserted and allowed to remain in the bladder during the functional test period. This variable leakage was an argument strongly advanced by those who preferred the segregator of Luys to the ureteral catheter; and at that time, there was much discussion as to the relative merits of segregation versus ureteral catheterization.

This leakage, though variable, did not seem to be of tremendous importance when a catheter was in each ureter, since final conclusions as to renal function were based on all available data from one kidney's secretion compared with that from the other. It was of more importance when only one kidney had been catheterized, and the flow from the other was estimated by the flow from the catheter inserted into the bladder.

In estimating renal function from the separate urines we observed regularly not only the Polyuria test, but several tests,—comparing urea secretion, chloride secretion, methylene blue secretion, and microscopic sediment of right, left, and bladder control. The polyuria test, as Dr. Cabot said, does require proper interpretation. But the polyuria test is only one part of the whole procedure. Considered alone, we are many times in doubt as to its interpretation, but when the combined procedure has been carried out the difficulty of interpretation is measurably diminished, and the functional Test proves to be of the utmost value.

Dr. Garceau: If, by the usual methods of double catheterization, we get leakage alongside the ureteral catheters, even No. 8 Fr. ureteral catheters, and if that leakage amounts to 48 per cent. in all cases, being as high as 100 cc. in 2 hours in 16 per cent. of the cases when No. 8 Fr. catheters are used, then it is evident that this method is unsatisfactory. Of course, if we could say from which side the leakage occurred, in double catheterization, it would be easy to add the amount of residual bladder urine to the urine collected by the inefficient catheter; but we do not know; nor can I agree that the leakage, when it occurs, must be equal on both sides for the reason that it is impossible to determine this point.

The great advantage in using my No. 11 Fr. occlusive catheter is that it is necessary to catheterize but one side; the urine from the opposite kidney is collected by a catheter laid in the bladder. I am very positive that the instrument will do this ac-

curately every time for my cases are now numerous enough to leave no doubt as to this.

I have seen the polyuria test performed many times and I am of the opinion that it is an excellent test. At first I was somewhat sceptical about it but as I saw more cases I became convinced of its value. It does not, however, succeed every time: No test does, and no test, in my opinion, ever will, for the reason that we shall never be able to eliminate the occasional accident of disturbed renal innervation which interferes with all tests. If the polyuria test does not succeed the first time a second trial may be made: further experiment is useless. A better test than the polyuria test is the phenolsulphonephthalein. By the intravenous method of administration it takes only half an hour and its results are, on the whole, excellent.

FAULTY CONSTRUCTION CATHETER.

DR. R. F. O'NEIL showed a catheter of faulty construction. This catheter was introduced through the perineum after an amputation of the penis. Urine flowed out on introduction of the catheter but no irrigation fluid could be forced in. It drained rather poorly for 48 hours and was removed. On section it showed the valve-like flap as shown in the cut.



A CASE OF HYPERNEPHROMA OF A DISPLACED KIDNEY SIMULATING AN OVARIAN CYST.

DR. E. B. YOUNG, Boston, reported the following case:

L. D. Entered Boston City Hospital July 19, 1910. Age 34 years. Married 15 years.

Previous History: Menstruation began at 17 years of age; regular; duration 7-10 days; 3 napkins daily. Six children born by normal labor at full term. Last birth 10 years previous to entrance. Slight vaginal discharge 3 years; some nocturnal frequency of urination.

Present Illness: For one year a dull ache in the lower abdomen, which grew worse five months previous to entrance. Has been constant since that time. Has had backaches for one year and noticed that abdomen was increasing in size. Temperature 98. Pulse 72.

Urinary Examination: S. G. 1015. Acid. Trace of albumen. No sugar. Sediment—many blood cells, leucocytes, small round cells, epithelial cells. No casts. All succeeding urinary examinations showed nothing abnormal.

Pelvic examination showed a tendency to prolapse of the anterior and posterior vaginal walls. Uterus retroverted to the third degree, and there was a bilateral tear of the cervix. Apparently connected with the left appendages was a tumor the size of a baby's head which floated upward, was freely movable, and did not appear to be closely connected with the uterus itself. The rounded regular mass moved in all directions except upward. General condition of the patient was very poor.

On account of her poor general condition, the patient was kept in bed and given iron, arsenic and strychnine as a tonic, being kept at the same time in the open air.

Operation August 4th. Median laparotomy incision under ether. A tumor, evidently retroperitoneal, presented, and a strand which appeared to connect the tumor with the left appendages was found to be a stretched fold of the mesentery of the sigmoid flexure. The sigmoid flexure itself ran over the top of the tumor.

The covering of the tumor contained many dilated veins, some easily half an inch in diameter. The peritoneum was incised over the tumor to the outer side of the sigmoid flexure, the veins being tied off as near the base of the tumor as possible, in order to control the many branches.

The tumor was found arising from the left kidney, the upper pole and most of the kidney being involved. The mass was more or less necrotic and was surrounded with gauze handkerchiefs. The renal artery and vein were ligated separately, ureter tied off, and the tumor shelled from its bed. The peritoneal sac was trimmed off, the edges brought together, and a cigarette drain led into the cavity to the stump of the ureter. The ureter and renal vein were normal, and no enlarged glands were to be found.

When last seen, about six months after operation, the patient had gained flesh and was to all appearances perfectly well. All further trace has been lost.

Aug. 8th. Temperature and pulse normal. Patient voiding 20-30 ounces of urine daily. General condition satisfactory.

Aug. 14 to 28th. Temperature and pulse normal.

Aug. 30th. Abdominal wound firmly healed. Uterus retroverted but movable. Passing 20-30 ounces of urine daily, but amount of water patient drinks is small.

Discharged well Aug. 30, 1910.

Pathological Report: Hypernephroma.

L. D., specimen consists of a kidney, with a large tumor mass attached to the upper pole. On external examination the kidney is apparently considerably reduced in size. On section, through the tumor and kidney, a sharp line of demarcation is seen between the two structures. The tumor is soft and mushy in consistency. The color for the most part is lemon yellow, with here and there dark hemorrhagic-like areas. These are confined largely to the peripheral part of the mass, and also to that part which would be occupied by the adrenal gland at the upper pole of the kidney.

There is, however, no evidence of adrenal seen here, but the tissue of this part is firmer and more hemorrhagic than elsewhere. On the outside several tabs of fibrous tissue are seen. The kidney tissue is pale brown in color; differentiation between the cortex and medulla is not sharp. Capulse strips readily, leaving a smooth surface. Probably about one-third of the kidney is replaced or encroached upon by the tumor mass. Ureter and renal vessels normal.

Diagnosis: Hypernephroma.

DR. A. J. CABOT read a paper entitled,

INJURY TO THE VENA CAVA.[4]

DR. E. B. YOUNG read a paper entitled,

UTERO-VESICO-VAGINAL-FISTULA.[5]

DR. O. R. T. L'ESPERANCE read a paper entitled,

THE EXCRETION OF FORMALDEHYDE BY THE KIDNEYS OF PATIENTS TAKING UROTROPIN: A STUDY OF BURNAM'S TEST.[6]

DRS. A. L. CHUTE AND A. H. CROSBIE read a paper entitled,

MUCOUS CANCER OF THE BLADDER.[7]

[4] See JOURNAL, p. 578. [5] See JOURNAL, p. 580. [6] See JOURNAL, p. 577. [7] See JOURNAL, p. 583.

Book Reviews.

A Text-Book of Pathology for Students in Medicine. By J. George Adami, M.A., M.D., F.R.S., and John McCrae, M.R.C.P. Illustrated with 304 engravings and 11 colored plates. Lea and Febiger. 1912.

This text-book, as a whole, is admirable and remarkably well-balanced, a logical result of the joint efforts of two authors who, while temperamentally different, are so well qualified. It is safe to predict that it will supplant other text-books in English now in use.

There are two parts—the first deals with general pathology and contains five chapters: 1, is introductory, about cells and tissues; 2, considers the causes of diseases; 3, is entitled "The Morbid and Reactive Processes," with special headings,—Inflammation, Infection, Fever, Immunity, Syncope, Shock and Collapse, and Pain; 4, is on the progressive tissue changes, and includes Overgrowth, Regeneration, Transplantation, Metaplasia and Tumors; 5, is on the regressive tissue changes, and includes Normal Histolysis, The Degenerations of Infiltrations, Necrosis and Death.

The subject matter of these chapters is very well presented, and is almost remarkable for clearness and condensation. The treatment of the causes of the disease and disease processes is essentially broad in character, and is drawn and correlated from various sources, including embryology, parasitology, physiology, chemistry and immunology. The treatment of tumors in the chapter on progressive tissue changes contains little to criticize and very much to commend. Their terminology and statements accord with modern views; their classification is serviceable. It is a pleasure to find that the authors have adopted specific names for cells, instead of the loose descriptive terms which are still found in so many text-books, such as epithelioid, and small round cell.

The second part is on Special and Systemic Pathology. The seven chapters are under the following headings: The Cardio-Vascular System, The Respiratory System, The Nervous System, The Digestive System, The Urinary System, The Reproductive System, The Motor and Tegumentary Systems. The bulk of the material included is large; the gross descriptions are very good, the microscopic descriptions meagre; and here one becomes aware of a deficiency in the book, considered from the standpoint of a students' text-book, that is, the absence of a chapter on the specific infectious processes considered independently from the organs which they affect. For example, tuberculosis, typhoid, syphilis and leprosy are treated in the considerations of the organs which may be involved, but no clear statement is given anywhere of these diseases as processes. It is possible to present the nature and sequence of the cell reactions in each of these diseases in such a way as to explain the variety of appearances, which may occur in the different organs, dependent upon the order in which different tissues are affected, and upon gross anatomical structure and relations. In this text-book the lesions are described but not explained.

In general, the histological descriptions are too brief—the space devoted to the histology of syphilis is but a few lines. The typhoid lesion receives somewhat better treatment, but still it is not stated clearly enough to explain the various stages described and illustrated. The reactions of the tissues to the leprosy bacillus and how these reactions give rise to the great variety of gross appearances of leprosy is nowhere touched upon. The space devoted to the kidneys is small and the forms of nephritis are included under the headings of acute parenchymatous nephritis, chronic parenchymatous nephritis, chronic interstitial nephritis and acute interstitial nephritis. A more detailed classification of kidney lesions is usually given in text-books.

The special pathology of the skin, genitalia and mammary glands is meagre; in fact, fully as brief as is found in clinical text-books.

The illustrations are chiefly original and are excellent. In nearly every instance they illustrate effectively—a rare achievement—and indicate the abundance of material that the authors have at their disposal and their independence in making selections and forming opinions. The text-book is essentially original in the material employed and in presentation. It is a valuable acquisition and has been needed for some time. It speaks for the importance of Montreal as a centre of pathological study.

Studies from the Rockefeller Institute for Medical Research. Reprints, Volume XV. New York: The Rockefeller Institute for Medical Research. 1912.

This latest volume of researches from the Rockefeller Institute consists of 37 papers in English and 11 in German, by various authors. Noguchi, in a series of five articles, presents further studies on the spirochetes, illustrated by beautiful plates. Jacques Loeb, with Bentner, Bancroft and Wasteneys, continues his investigations into parthenogenesis and biochemistry. Carrel pursues his work in vascular surgery and the cultivation of tissues outside the body. Draper and Peabody contribute a valuable study of the cerebrospinal fluid and blood in acute poliomyelitis. Rous presents important data on the behavior of transplantable sarcoma both in adult fowls and in the chicken embryo. The only contribution by Simon Flexner to this volume is his address on "The Biologic Basis of Specific Therapy," originally published in the issue of the Journal for Nov. 9, 1911 (Vol. clxv, p. 709), and by an oversight not credited to the Journal in this reprint.

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THE ANEMIC HABIT.

CHRONIC anemia seems such a simple matter and its relief so easy that ordinarily little consideration is accorded it, save as a signal for the administration of iron. It is too often forgotten that chronic anemia may be a vestige or sequela of some former disease, as, for instance, malaria, syphilis, uncinariasis, or lead-poisoning. In such conditions, while the anemia may be truly secondary and the original disease may have been entirely cured, yet very often the condition is none the less serious, and is far from being itself easily curable. Because so far no assured etiological factor has been discovered for them, progressive pernicious anemia and chlorosis are called idiopathic, primary, or essential anemias, constituting a definite disease entity in themselves. Most anemias, however, come under the heading of secondary or symptomatic affections. The tendency in text-books is to slight the importance of these conditions, especially as to their treatment. "Remove the cause and give iron" rightly summarizes the treatment generally outlined.

A timely halt is called to this superficial routine disposition of chronic anemias in a recent paper by Dr. Harlow Brooks, which also emphasizes the value of intensive clinical study of the ordinary cases coming under the observation of the general practitioner. Brooks uses the expression "anemic habit" to describe a condition in which long standing anemia, from whatever cause, leads to a condition of the hematogenic centres, characterized by an indisposition or resistance to a restitution of the blood to a normal level. This condition of a persistence in a sub-normal standard of blood formation continues even when the etiologic factors of the anemia have been entirely eradicated. The blood forming organs have become accustomed to a low demand or to long-continued functional depression, and after the original causative agent is removed they continue to functionate at the same level to which they have been habituated.

This anemic habit is the element which makes the treatment of many chronic anemias so difficult. Success is impossible until its influence has been wholly eliminated. The effort must be made to stimulate the blood-forming centers directly by developing a greater tissue demand on the blood. Each case must receive intensive study and the application of medicinal and physical agents must be individualized. Either drugs or nature alone is insufficient in such cases. Combination of the two is necessary. Relapses are frequent and treatment must be long continued and persistent. If the patient seems comfortable with the blood in an anemic condition, if he is able to pursue his affairs with a hemoglobin per cent. of 55, it may be asked why the effort should be made to increase the hemoglobin and relieve the anemia. The answer lies in the statement that an habitual anemia, even though it may not incapacitate the patient, leaves him too narrow a margin of safety against metabolic disorders, acute infections and even functional mental and nervous diseases. His resisting power is too low.

Brooks recommends careful attention to the dietary, to passive and active exercise, and to a salubrious climate. The stimulating effect of a change of climate is often in itself advantageous. It has been truly said that it is often not so much the climate to which a person goes as the one which he leaves, that is of importance. Proper credit is given to the direct action of sunlight on the hematogenic organs. This is similar to the remarkable results obtained by exposing surgical forms of tuberculosis to the direct sunlight, especially tuberculous skin, joint and gland lesions. In these cases the results are better at an altitude where the actinic rays are not filtered out by the denser air strata.

The physician in general practice should keep in mind the importance and difficulty of successfully treating the anemic habit.

[1] Brooks, Harlow. The Anemic Habit. N. Y. Med. Jour., July 20, 1912.

THE PREVENTION OF OCCUPATIONAL DISEASES.

The Section Meeting on the Hygiene of Occupations of the Fifteenth International Congress on Hygiene and Demography, held in Washington, D. C., Thursday afternoon, September 26th, was well attended by social workers and others interested in the subject. The officers of the Section present were Dr. George M. Kober, president, Dr. William C. Hanson, vice-president, and Dr. Alice Hamilton, secretary.

Two important resolves bearing on the prevention of occupational diseases were recommended by the Section for consideration by the Congress,—one introduced by Sir Thomas Oliver of England, the other by Dr. Hanson. Both resolves were voted upon favorably after some discussion and a slight modification, the question being: Whether persons without a medical training were adequately equipped for the proper investigation of the hygiene of occupations and for the study of the effects of occupations upon health. Prominent among those entering into the discussion were Prof. John Commons, Wisconsin, head of the new Industrial Commission of that State, and Mrs. Florence Kelley, secretary of the National Consumers' League. It was finally voted by the members of the Congress present at the Section that only those persons having a medical education, combined with some practical knowledge of occupational processes, should be authorized to make legal investigations relating to the prevention of occupational diseases or conditions of such a nature as to call for a knowledge of physiology and pathology in order to weigh and determine intelligently the effects of occupation on health. One of the resolves also provided for the investigation of home conditions in factory communities in connection with the inspection of industrial establishments.

Such resolves, if adopted by the Congress at large, should prove an invaluable aid to our legislative bodies throughout the country in the event of enacting legislation on the subject, so that we may have intelligent bodies of workers best equipped to prevent all possible diseases and conditions detrimental to the health of factory workers and thereby greatly to promote the public health.

THE CONTROL OF TUBERCULOSIS.

In the issue of the Journal for Aug. 1 [Vol. clxvii, p. 172] we commented on the use of the kinematograph by the Boston Association for the Relief and Control of Tuberculosis in its movement for the diffusion of popular education in hygiene. Several other experiments employed by this association in its effort to suppress tuberculosis are also deserving of notice.

"One of these is the employment, since the first of the year, of a domestic science instructor who visits a number of families in tuberculous districts to help them to a more healthful plane of living. The work is patterned after the work the North American Civic League for Immigrants is doing in Buffalo, whence good results are reported. The domestic science instructor goes into the homes to show the housewife how to keep her home clean, how to cook, how to vary the diet, how to get the most for her money, how to prevent sickness, to sew, to take care of the children, and various other duties affecting the tone of the home. In such measure as they succeed in raising the standard of living, paying due attention to sanitation and nutrition, they check the progress of the disease and prevent its spread to other individuals and other communities. It is an expensive undertaking, however, in its present stage of developement when one instructor cannot attend adequately to more than a dozen families.

"A still newer experiment is the employment of a visitor to go to the homes of patients who have been discharged from the State sanatori. This is what is called the after-care work, and while it is under the supervision of the Hospital for Consumptives it is supported by the Boston Association, and is expected to reveal a condition which will need prompt attention. The State Board of Health recently called attention to this situation. Patients are discharged from the State institutions as cured, or with the disease arrested, and go back to home surroundings which impair their health again and cause relapses. Besides the loss of health this is an economic loss. The State has been at considerable expense to restore the patient and make him a useful member of the community, able again to support his family; but when the patient is not watched after his discharge he is likely to undo quickly what the public has done for him and again become dependent."

The importance of this work done by the Association is not solely in its preventive but in its educative value, and it deserves the hearty encouragement and support of all interested in the hygienic improvement of the people.

MEDICAL NOTES.

Honor for Sir William Ramsay.—On Friday, Oct. 18, the honorary degree of LL.D. was conferred by Johns Hopkins University on Sir William Ramsay, the eminent British chemist now visiting the United States.

DEATH OF A PYGOPAGUS.—Report from Wilmington, N. C., announces the death near that city on Oct. 9 of Millie-Christine, the celebrated pygopagous twins, who were born slaves in July, 1851. They are said to have died within a few hours of each other, but the nature of their disease is not stated. The Blazek sisters and the Brighton twins are now the only known living pygopagi.

TUBERCULOSIS DAY.—At the request of the National Association for the Study and Prevention of Tuberculosis, next Sunday, Oct. 27, has been designated as "Tuberculosis Day," and on this day the clergy throughout the United States will take occasion to speak of the conflict against tuberculosis and to urge their parishioners to participation.

AN ABSTAINING CENTENARIAN. — Joseph Marshi, who died at Chicago on Oct. 20, is said to have been born in 1802 in Germany. He was a carpenter by trade and came to the United States in 1842. At the age of 80 he discontinued his lifelong use of alcoholic beverages, and at the age of 105 that of tobacco, for fear that further persistence in the indulgence of these habits might shorten his life.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to $180, will be made on July 14, 1913, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the Secretary of the College on or before May 1, 1913.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award.

TWO MEDICAL CONGRESSES.—The first Italian Congress on the History of Medicine and Natural Science was held in Rome from Oct. 11 to 14 inclusive.

The first International Congress on Comparative Pathology is to be held at Paris from Oct. 17 to 23, inclusive, under the presidency of Dr. Roger, professor of experimental and comparative pathology in the Paris Faculty of Medicine.

"This Congress will deal with the whole series of diseases common to mankind and animals, with the relations existing between the diseases of the different species, with vegetable pathology and the possible relations of certain diseases of plants and those of animals. In addition to reports on the pathogeny of tuberculosis to be submitted by MM. Calmette, Chaussée, Vallée and Lignières, other communications on the same subject will be presented by Professor Paul Courmont of Lyons (comparison of agglutination of Koch's bacillus in man and animals); A. De Jong, professor of medicine in the University of Leyden; Dr. Moore, director of the Veterinary College, New York (elimination of tubercle bacilli by infected animals); Professor Bruschettini of Genoa (vaccination against bovine tuberculosis, studied on laboratory animals—rabbit, guinea-pig, etc.); Dr. André Jousset (tuberculosis in the guinea-pig), and others."

OPERATION ON SIGNOR MARCONI.—Report from Rome states that on Oct. 17 Dr. Boyardi of Turin, after consultation with Dr. Fuchs of Vienna, removed the right eye of Signor Guiglielmo Marconi, the inventor of wireless telegraphy, who was injured on Sept. 25 in an automobile accident near Borghetto. The trauma to the right eye proved so severe that its removal was advocated in the effort and hope to prevent sympathetic ophthalmia of the left eye.

MR. ROOSEVELT'S INJURY.—The injury received by ex-President Roosevelt at his attempted assassination last week was fortunately not of an immediately serious nature. Apparently the bullet made its wound of entrance in the fifth right intercostal space in the midclavicular line, then, passing obliquely upward, fractured the fourth right rib, and embedded itself among the fragments at the origin of a digitation of the serratus magnus. There have been no pleural or septic complications, and a week after the injury, Mr. Roosevelt left the Mercy Hospital, Chicago, to return to his home. The bullet has not been removed.

EXPEDITION TO THE TROPICS FOR THE STUDY OF MALARIA.—This expedition was made possible

through the kindness of an unknown friend who, through Dr. Isadore Dyer, Dean of the Medical Department of Tulane University, contributed a fund to finance the project.

The United Fruit Company, who have already contributed $25,000 towards the expenses of the School of Tropical Medicine, placed their steamships and other equipment at the service of the School for the transportation gratis of the expedition and apparatus. Colonel W. C. Gorgas, Chief Sanitary Officer of the Panama Canal Zone, with various members of his staff, placed all the material in his hospitals at the disposal of the expedition and extended every possible courtesy.

The personnel of the expedition consisted of two members of the School, Dr. Charles Cassedy Bass, Assistant Professor of Tropical Medicine and Hygiene, and Dr. Foster Mathew Johns, Assistant in the Laboratories of Tropical Medicine and Hygiene.

The object of the investigation was the cultivation of the malarial parasites *in vitro*, which had already been accomplished by Professor Bass, but many details of which remained to be elucidated and confirmed.

In this the party obtained complete success. It was found that the malarial plasmodia can be grown in human serum, in Locke's fluid (from which calcium chloride is omitted) and in human ascitic fluid. In the majority of cases dextrose must be added to the medium to secure satisfactory growth. The most favorable temperature for the cultivation of the plasmodia is about 40° C.

Positive cultures were obtained from 29 cases of aestivo-autumnal malaria, 6 cases of tertian and 1 case of quartan. Cultures were carried on four generations from the parent culture before the expedition left Central America, and can probably be maintained indefinitely.

The full report of the expedition may be found in the October number of the *Journal of Experimental Medicine*.

A British Centenarian.—Mrs. Mary Neighbour, who died in Sunningdale, England, on Sept. 25, is said to have been born in 1809 at Chobham, Surrey. She is survived by five of her thirteen children, of whom the eldest is now 81 years of age.

Western Reserve Medical School.—In his recent report, Dr. B. L. Millikin, retiring dean of the medical department of Western Reserve University, describes as follows the recent progress of the school:

"The consolidation of the Ohio Wesleyan Medical School with the Western Reserve medical department has been a happy solution of a problem and has aided greatly the improvement of medical education in Ohio. The good feeling with which this consolidation has been worked out is a matter for much congratulation to the entire medical profession and a matter of great advantage to this community.

"After long study by a committee from the faculty the curriculum has been very extensively modified in order to meet the requirements of a modern medical course, harmonizing and properly equalizing to one another the various branches of medicine, thus more efficiently developing the teaching of the Medical School.

"When it was voted by the medical faculty and agreed to by the trustees of the university that the requirements for admission to the school should be the equivalent of three years of college work, to take effect in 1901, certain trustees and friends of the school agreed to stand behind the scheme financially until the wisdom of the move should be demonstrated. No one interested in the school can ever forget the loyalty with which this agreement has been carried out. For more than ten years these friends have contributed nearly $10,000 a year for carrying on the work of the school during its years of hard trial. More than $100,000—to be exact, $102,265—has been contributed towards making a success which otherwise could never have been accomplished.

"For more than a year a large committee of the faculty has given a great amount of time to a thorough study of the development of the college work from a broad standpoint in view of the increased endowment of the school. Several of the recommendations of this committee have already been adopted, such as the organization of the fifth year in medicine, the appointment of a committee whose function it will be to develop a post-graduate line of instruction, a method for the more efficient organization of the business affairs of the school, a closer, more intimate affiliation of the Medical School with the various hospitals and dispensaries of the city, a closer contact of the school and the medical men with the charitable and civic organizations of the city, in which in the near future this school should become a great leader, studying and promoting all sorts of economic, hygienic and civic questions."

BOSTON AND NEW ENGLAND.

Seizure of Apricots in Boston.—In Boston last week, the United States deputy marshal seized 64 cases of apricots, shipped to this city by a firm from New York, but alleged by the federal inspectors to be "adulterated and filthy, decomposed and putrid vegetable matter."

SCARLET-FEVER AT WAREHAM.—Report from Wareham, Mass., on Oct. 16, states that scarlet-fever is at present extensively epidemic in that town. To this date there had been 38 cases of the disease, but no deaths. All schools in the town have been closed by the local board of health.

A CENTENARIAN.—Mrs. Eliza A. Horton, who died at North Adams, Mass., on Oct. 15, is said to have been born in 1812 at Westport, N. Y.

NURSES' HOME AT QUINCY HOSPITAL.—On Thursday of last week, Oct. 10, the new Nurses' Home, of the Quincy (Mass.) Hospital, was dedicated with appropriate ceremony. It is the gift of Mr. Henry M. Faxon, who presented it to the hospital corporation. It was accepted by Mr. Fred B. Rice, president of the board of trustees.

"The building faces southwest towards the main entrance to the hospital grounds. It is 53 x 33 feet, is built of red tapestry brick in a Georgian style. It was designed by A. H. Wright, architect of Quincy.

"The basement is Quincy sap stone of rich, warm colors with lime stone trimmings. The entrance is in the centre of the broad front, with broad cut stone steps and paved brick platform, flanked by massive fluted doric columns and pilasters supporting the roof of the porch. The circular topped window immediately over marks the access of the building. The entrance leads into a large vestibule which opens into the main hall which runs through the house from front to back. A rear door opens on an open piazza across the end of the house from which is obtained a glorious view of Boston harbor. On the right hand the hall opens into a reception room and a large living one, all being connected by sliding doors. On the left hand access is given to a passage from which open two double and single bed rooms, also a bath room.

"The building is heated by steam and lighted by electricity. The plumbing is of the latest open type.

"The building cost about $30,000."

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Oct. 12, 1912, was 216, against 189 the corresponding week last year, showing an increase of 27 deaths, and making the death-rate for the week 15.64. Of this number 113 were males and 103 were females; 207 were white and 9 colored; 146 were born in the United States, 68 in foreign countries, and 2 unknown; 48 were of American parentage, 141 of foreign parentage, and 27 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 17 cases and 1 death; scarlatina, 7 cases and 0 deaths; typhoid fever, 21 cases and 1 death; measles, 27 cases and 0 deaths; tuberculosis, 61 cases and 24 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 25, whooping cough 1, heart disease 29, bronchitis 4. There were 11 deaths from violent causes. The number of children who died under one year was 55; the number under five years 66. The number of persons who died over sixty years of age was 61. The deaths in hospitals and public institutions were 93.

Deducting the deaths of non-residents, the total is 193. The corrected death-rate is then 13.98.

Cases of infectious diseases reported to the Boston Board of Health for the week ending October 15, 1912, are: diphtheria, 18; scarlatina, 12; typhoid fever, 17; measles, 25; smallpox, 0; tuberculosis, 51.

The death rate of the reported deaths for the week was 14.99.

NEW YORK.

BOURNE WORKSHOP FOR THE BLIND.—The Bourne Workshop for the Blind, the gift of Miss Emily Howland Bourne, in memory of deceased members of her family, to the New York Association for the Blind, was formally opened and dedicated, in the presence of a number of prominent persons, on October 16. The building, which is in East 35th Street and was erected at a cost of $107,000, is the first modern factory for the blind, and is complete in all its arrangements, from the roof garden, overlooking St. Gabriel's recreation park in front and the East River on one side, to the shower baths in the basement. Every precaution has been taken against fire, including automatic sprinklers in all the workrooms and chutes from each floor for the immediate removal of refuse. The institution opens with 50 broommakers and chair caners, and there are accommodation, for 100 more artisans.

ACCIDENT PREVENTION IN STEEL INDUSTRIES.—At a meeting of the Society of Medical Jurisprudence held on October 14, papers, profusely illustrated by stereopticon views, were read by Robert J. Young, manager of the department of

safety and relief of the Illinois Steel Company, on "Accident Prevention in Steel Mills," and by Dr. Thomas Darlington, lately president of the New York City Health Department and now secretary of the welfare committee of the Iron and Steel Institute, on "Welfare Work in Iron and Steel and Allied Industries."

Tuberculosis Day.—Cardinal Farley has issued directions that Sunday, October 27, shall be observed in the parishes of the Roman Catholic diocese of New York as "tuberculosis day," and also that a week-day be similarly observed in the various parochial schools. This action on the part of the Cardinal is due largely to the influence of the National Association for the Study and Prevention of Tuberculosis, which was successful likewise in securing the establishment of a "tuberculosis day" in the New York public schools. In a recent letter to Frank Mann, the secretary of the association, Cardinal Farley says: "I have become deeply interested in the subject of tuberculosis, and have followed with attention your various endeavors, by lecture and exhibition, to lessen the influence which this dreaded disease has had upon the poor and weakly of our country. It is a great consolation to learn that you have been able to decrease the number of victims by proper preventive methods; to win back by restorative means many whom its fatal touch threatened to destroy in the prime of life; to ameliorate the suffering of so many by your sanatoria, and thus stretch out the years of human life. . . . The campaign of education and regulation must continue until all shall know their duty, and have determination to push forward all preventive efforts against its breeding places, so that neither residence nor personal habit shall give occasion to its development."

Smith Infirmary.—Recently there was carried on a ten-day campaign in the Borough of Richmond for the purpose of raising $100,000 for the betterment of the S. R. Smith Infirmary at Tompkinsville, Staten Island, the principal hospital in the borough. This ended on October 18, and at 9 p. m. on that day the committee in charge of the matter announced that cash or pledges had been received to the amount of $97,500, and stated that J. Pierpont Morgan had engaged to contribute the remaining $2,500 when the above sum had been reached. Shortly before midnight, however, the amount raised had been increased to $108,333.

St. Louis Tuberculosis Camp.—Miss Helen Gould of New York has contributed $10,000 toward the establishment of the Day and Night Tuberculosis Camp at St. Louis, Mo., and it is announced that the camp will be ready for occupancy by Thanksgiving Day.

Appropriation for Health Department.—The total appropriation for the year 1913 which has been asked for by the city Health Department is $4,581,666, a figure which represents an increase of 42 per cent. over the appropriation granted in 1912. The largest increases requested are the following: For hospitals, $389,653; Division of Child Hygiene, $206,440; Otisville tuberculosis sanatorium, $140,185; milk inspection, $123,555; Division of Communicable Diseases, $106,746; Division of Contagious Diseases, $89,761; general administration, $78,846; food inspection, $76,875; laboratories, $61,380.

Vital Statistics for September.—On Oct. 8, Commissioner Lederle made public the following summary of vital statistics of the City of New York for the month of September, 1912, showing that another low record of the city's death rate has been established:

The mortality during the month of September, 1912, reached a lower point than that of any previous September in the history of the Department. The number of deaths reported during the month was 5,149, with a rate of 12.11 per 1000 of the population against 5,361 deaths and a rate of 13.10 during September, 1911; or to make comparison upon the absolute number of deaths corrected to correspond with the increase of population there would have been 427 more deaths than actually occurred. The average death rate for the month of September of the preceding fourteen years was 16.63 per 1000, which compared with that of last month was 4.22 higher; so that it may be truthfully said that if the average September rate of the previous 14 years had prevailed during September, 1912, there would have been 7,040 deaths reported or 1,891 more than took place.

Comparing the mortality of September, 1911 with that of the past month, we find that this latter presented the following decreases among the most prominent causes: typhoid fever 3, measles 9, scarlet fever 2, tuberculosis of the lungs 93,

cancer 7, broncho pneumonia 28, diarrheal diseases under five years of age 5, cirrhosis of the liver 40, accidents 11, homicide 3. Those causes showing increases were diphtheria and croup 3, tuberculosis other than pulmonary 18, apoplexy 22, organic heart diseases 50, lobar pneumonia 21, Bright's disease and nephritis 40, suicides 5. It is evident that the diseases showing an increased mortality were those affecting middle ages, and on the other hand, those affecting infants and children showed a decreased mortality. Continuing the comparison by age groupings we find under one year of age there were 15 fewer deaths, between 1 and 2 years 53 fewer and under 5 years of age 106 fewer. In fact all age groups showed a decreased mortality save that of 45 to 65 years which showed a slight increase.

The number of births reported during the month was 10,951, an increase of 142 compared with that of the corresponding month of 1911. The number of marriages reported was 4,089, a decrease of 13 compared with September, 1911.

GUARANTEED OYSTERS.—Under a new rule, announced on Oct. 10, all oysters hereafter offered for sale in this city must bear a guarantee of their freedom from pollution. Every dealer must procure a new license, and "before getting his new permit must swear among other things where the oysters come from, must mention the name of the grower, give proof of the purity of the water and furnish other data." It is hoped by this means to check the sale of oysters from contaminated waters, and thereby diminish the amount of endemic typhoid.

Current Literature.

MEDICAL RECORD.

OCTOBER 12, 1912.

1. HAIG, A. *Gout of the Intestines.*
2. EINHORN, M. *Agar Tubes for the Estimation of the Pancreatic Ferments.*
3. KAHN, M. *History of the Lithotomy Operation.*
4. MAVERICK, A. *Some Blunders Made by Nature in Treating Disease.*
5. *RHODES, G. B. *Etiology of Adhesions Occurring in the Large Intestine.*
6. WILSON, J. G. *Increase in the Death Rate from Diabetes—A Possible Explanation.*

5. Rhodes discusses the etiology of adhesions in the intestinal tract, especially on the colon, and reviews the literature of the subject. All the cases reported by various observers are accompanied by ptosis of the cecum, due generally to chronic constipation. Cecal ptosis leads to venous stasis and irritation from the enclosed feces which become increasingly toxic until the toxins penetrate the intestinal wall. The continued action of these toxins results in new tissue formation. This process of connective-tissue formation, when localized in the neighborhood of the appendix may be the cause of secondary appendicitis. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

OCTOBER 12, 1912.

1. WOODRUFF, C. E. *Blonds and Brunettes in the Tropics.*
2. BASSLER, A. *The Treatment of Diabetes.*
3. NASCHER, I. L. *Errors in Treatment of Senile Cases.*
4. *GARDNER, J. A., AND CLOWES, G. H. A. *The Specific Complement Deviation Reaction in Gonorrhea.*
5. STEINHARDT, I. D. *Ten Sex Talks to Girls.*
6. CHARBONNEAU, E. G. *High Frequency Currents in Eczema.*
7. RHODES, G. B. *Traumatic Separation of the Epiphyseal Beak of the Tibia.*
8. STRUNSKY, M. *Tuberculous Glands of the Neck Cured by the X-ray.*
9. KAUFMAN, B. *A New Theory Concerning the Origin of the Heart Beat.*
10. BLOOM, J. D. *A Frequent Surgical Annoyance.*
11. FLADEN, M. M. *Sputum Examinations and Tuberculin Tests at the Gouverneur Hospital Tuberculosis Clinic.*

4. Gardner and Clowes report on a study of the specific complement deviation reaction in gonorrhea in a series of 185 cases. They find that this test, when carried out with a polyvalent gonorrheal antigen by the method recommended by Schwartz and McNeil, gives remarkably reliable results and permits of a specific differentiation, even in the presence of syphilis and other diseases exhibiting complement deviation phenomena. A slight reaction is of unquestionable value in diagnosis, but should never be considered final. In no case did a normal individual exhibit a definite reaction when tested with the gonorrheal antigen. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

OCTOBER 12, 1912.

1. WALCOTT, H. P. *Public Health in America.*
2. JAYNE, W. A. *Medical Progress.*
3. HARRIS, N. M. *Intestinal Antisepsis.*
4. *CAPPS, J. A. *Effect of Iodides on the Circulation and Blood-Vessels in Arteriosclerosis.*
5. *EGGLESTON, C. *Clinical Observations on the Duration of Digitalis Action.*
6. *SPOONER, L. H. *Antityphoid Inoculation. Three Years' Experience With Its Use in Training Schools for Nurses in Massachusetts.*
7. *RUSSELL, F. F. *Some Results and Fields of Usefulness of Antityphoid Vaccination.*
8. *HACHTEL, E. W., AND STONER, H. W. *Inoculation Against Typhoid in Public Institutions and in Civil Communities. A Further Report.*
9. LANDIS, H. R. M. *A Study of the Ultimate Results in the Dispensary Treatment of Tuberculosis.*
10. FLEXNER, S. *The Mode of Infection in Epidemic Poliomyelitis.*
11. HIRSCHFELDER, J. O. *The Production of Active and Passive Immunity to the Pneumococcus With a Soluble Vaccine. A Preliminary Report.*
12. MACFARLAND, C. *A Graphic Menstrual Chart.*

13. Emerson, C. *A Clinical Incubator at Small Cost.*
14. Linnell, B. M. *A Pocket Mercury Sphygmomanometer.*
15. Torrance, G. *Successful Transplantation of Ureter from Vagina to Fundus of Bladder Twenty Months after Wertheim Operation in Which Greater Part of Trigone Was Resected.*
16. Charlton, C. C. *A New Antrum Irrigator.*

4. Capps believes that iodides in therapeutic doses are not active vasodilators and when long continued do not materially affect blood pressure nor do they alter the viscosity of the blood in a marked degree. They probably owe their beneficial influence in syphilitic arteriosclerosis to the absorption of the cellular exudate in the arteries. The absorption may be brought about by the formation of a proteolytic ferment which is created by the union of iodide with antibody and which has a selective action on the luetic cellular exudate. It is possible that this selective digestive action may be operative to a lesser degree on the cellular exudate in arteriosclerosis due to other causes than syphilis.

5. Cumulation in the case of digitalis is the result of a simple summation of amounts absorbed and fixed in the tissues probably of the heart and owing to the firmness of this fixation the intake is in excess of the elimination. The fixed portion continues to exert its typical action on the heart and this action is directly dependent on the amount of the drug so fixed. The continued use of small doses of the drug and, within certain limits, the interrupted administration of small doses raises by the process of summation the total amount fixed and acts on the heart to such an extent that toxic symptoms develop.

6. Spooner points out that frequent injections of small amounts of a low virulence vaccine in antityphoid inoculation cause slight inconvenience. They seem to produce a protection among nurses, who are eight times more liable to the disease than the average individual. Morbidity in 1361 cases was 1.4% and morbidity among the uninoculated in those hospitals is nearly nine times greater than among the inoculated subjected to similar conditions. No permanent untoward effects have arisen from over 5000 injections. The blood picture indicates a certain protection lasting at least two and a half years.

7. Russell believes that antityphoid vaccination is essential for the army and state militia, for nurses and other hospital attendants, those connected with charity organizations, undertakers, and large companies in groups such as mining towns, engineers, etc., but that it is not necessary or feasible in ordinary civic life.

8. Hachtel and Stoner agree with the essential points in both Spooner's and Russell's papers.

[E. H. R.]

Archives of Internal Medicine.

September, 1912.

1. *Pemberton, R., and Sweet, J. E. *Experimental Notes on the Influence of the Adrenals over the Pancreas.*
2. *DuBois, E. F. *The Absorption of Food in Typhoid Fever.*
3. *Wood, C. I., and Weisman, P. G. *The Effect of a Skin Irritant on the Local Blood-Flow in the Hand.*
4. Granger, A. S. *Concerning the Presence in Urine of Certain Pressor Bases.*
5. Park, E. A., and McGuire, W. C. *A Criticism of Two Percussion Methods for the Diagnosis of the Enlarged Thymus.*
6. *Illinois Pellagra Commission. *Pellagra in Illinois.*
7. Newburgh, L. H., and Kelly, T. H. *The Effect of the Tuberculo-Toxin on the Adrenal Function.*
8. *Warfield, L. M. *Studies in Auscultatory Blood-Pressure Phenomena. I. The Experimental Determination of Diastolic Pressure.*
9. *Hatcher, R. A. *The Persistence of Action of the Digitalins.*

1. Pemberton and Sweet report results of further experiments on dogs to determine the influence of the adrenals on the pancreas. They find that removal of the adrenal glands from dogs otherwise normal induces a flow of pancreatic juice which may last for hours. Intravenous injections of epinephrin inhibit the flow of pancreatic juice even when the flow following removal of the adrenals, is at its height, the flow returning as the effect of the injection wears off. It is, therefore, probable that there is normally some such relation between these glands.

2. DuBois reports some very interesting clinical experiments on food absorption and metabolism in typhoid fever. He finds that typhoid patients throughout the disease can absorb carbohydrates and protein as well as normal individuals. They can absorb very large amounts of fat, but the percentage of absorption is somewhat lower than the normal, especially in the earlier part of the disease.

3. Wood and Weisman experimented on the effect of skin irritation from mustard on the blood flow in the hand. They find that irritation short of a definite dermatitis does not materially increase the rate of flow. The local redness is probably due to a dilatation of the cutaneous capillaries and venules without a corresponding dilatation of the underlying arterioles.

6. The Illinois Pellagra Commission concludes an exhaustive report of its study of pellagra in Illinois. A few of the general conclusions are particularly interesting. Pellagra is a disease due to infection with some living micro-organism. A possible habitat for this parasite in man is the intestinal canal. Deficient animal protein in the diet may constitute a predisposing factor in the contraction of the disease.

8. Warfield reports some interesting experiments on the determination of diastolic blood-pressure by auscultation. He finds that there are auscultatory tone phases in the femoral arteries of dogs which correspond in a general way to those in man. The systolic pressure is at the point where the first tone is heard as the blood rushes under the site of compression. The diastolic pressure is not at the point of disappearance of sound when the pressure is gradually reduced, but occurs when the first dull tone is heard following a loud, sharp tone. It is possible in dogs to measure accurately the diastolic pressure by the auscultatory phenomena.

9. Hatcher reports an some animal experimentation with the digitalins. The production of so-called cumulative effects, he says, depends on the relationships existing among a number of factors, including absorption, elimination and persistence of action. The actions of the digitalins persist for periods of time which vary widely with the different members of the group. The actions of digitoxin and digitalis persist longer than do those of the other digitalins in common use. The clinician must determine whether the long-lasting action of digitalis or the briefer action of strophanthus is to be preferred in a given case, but strophanthus cannot rival digitalis in general use until we learn more of the conditions governing its absorption from the gastro-intestinal tract. Careful regulation of the therapeutic dosage of the digitalins is necessary, especially when they are used in such a way that action is elicited while the action of a previously used digitalin persists, for every digitalin is a synergist of every other member of the group.

[L. D. C.]

JOURNAL OF MEDICAL RESEARCH.

SEPTEMBER, 1912.

1. *WOLBACH, S. B. *The Filterable Viruses, A Summary.*
2. WOLBACH, S. B., AND TODD, J. L. *A Study of Chronic Ulcers, Ulcus Tropicum, from the Gambia.*
3. ZEIT, F. R. *Congenital Atresia of Esophagus with Esophago-Tracheal Fistula.*
4. BULLARD, H. H. *The Microscopical Demonstration of Fats in Tissue Sections.*
5. BERGEY, D. H. *Differentiation of Cultures of Streptococcus.*
6. FROTHINGHAM, C., JR., AND MINOT, G. R. *The Effect of the Injection of Bovine Bile into Rabbits.*
7. *WOLBACH, S. B., AND BINGER, C. A. L. *A Contribution to the Parasitology of Trypanosomiasis.*
8. PARK, W. H., AND KRUMWEIDE, C., JR. *The Relative Importance of the Bovine and Human Types of Tubercle Bacilli in the Different Forms of Tuberculosis.*

1. Wolbach classifies the filterable viruses according to their means of transmission, localization in the tissues, and properties in respect to physical and chemical agents.

7. From a study of the parasitology of trypanosomiasis the authors reach the following conclusions:

In trypanosomiasis the trypanosomes do not remain confined to the blood vessels and lymphatics. They invade the connective tissue structures of all organs, the reticular tissue of lymph nodes and spleen, and the substance of the brain.

The lesions of trypanosomiasis are due to the presence of the trypanosomes in the tissues.

The most common form of trypanosome in tissue, and we believe the one most active in the production of lesions, is the flagellate form. [L. H. S.]

THE QUARTERLY JOURNAL OF MEDICINE.

VOL. 5. NO. 20. JULY, 1912.

1. *MILNE, L. S. *Congenital Atresia of the Bile Passages.*
2. *HART, T. S. *The Acidosis Index.*
3. *PURSER, F. C. *An Epidemic of Gangrenous Dermatitis.*
4. *BOLTON, C. *The Origin of Chronic Ulcer of the Stomach in the Acute Variety of the Disease.*
5. *POYNTON, F. J., AND PAINE, A. *A Research upon Combined Mitral and Aortic Disease of Rheumatic Origin.*
6. *FINDLAY, L. *A Case of Thomsen's Disease.*
7. BEDDARD, A. P., AND PLUMTRE, C. M. *A Further Note on Ochronosis Associated with Carboluria.*
8. GORDON, M. H. *Critical Review. The Sensitized Vaccine of Besredka.*

1. Milne reports a case of congenital atresia of the bile passages and discusses the etiology of this affection. He believes that the obliteration of the bile ducts is due to a malformation rather than to cholangitis, for the following reasons: 1. No cholangitis has ever been demonstrated at autopsy in these cases. 2. The cirrhosis of the liver, which is always present, is insignificant in those infants dying soon after birth, and is more marked the longer the child lives. 3. A similar cirrhotic change is found in the liver in biliary obstruction in man, and was produced by the author experimentally in cats by tying the common duct.

2. Stuart Hart proposes a simple and fairly accurate clinical method for the estimation of the degree of acid intoxication in diabetes. It depends upon the old ferric chloride test for diacetic acid, which is made quantitative by colorimetric comparison with a standard solution of ethyl aceto-acetate. The values obtained in this way agree approximately with the amount of oxybutyric acid as determined by exact chemical methods.

3. Purser describes a hospital epidemic of gangrenous dermatitis, the lesions being situated in the buttocks. The mortality was low. The etiology could not be ascertained.

4. In this article, which is too long for a detailed review, Bolton attempts to show that chronic gastric ulcer always originates from an acute ulcer. The evidence he presents is far from convincing.

5. Poynton and Paine show good reason to believe that rheumatism may be the cause of malignant endocarditis, and also that a positive blood culture in endocarditis is no certain proof of malignancy. They found as a consequence of rheumatism all grades of endocarditis, from old healed lesions to large vegetations full of "strepto-diplococci," and suggest that the term malignant endocarditis be dropped and "active" used in its place.

6. Findlay's article on Thomsen's disease throws no new light on this obscure process, but presents a well studied case with a discussion of the recent literature. [W. T.]

THE LANCET.

SEPTEMBER 28, 1912.

1. *OLIVER, T. *Dust and Fume, Foes of Industrial Life.*
2. *ROBERTSON, W. F. *The Etiology of Dementia Paralytica.*
3. CONNOR, E. M., AND BASHALL, C. E. *Amputation in Infantile Paralysis.*
4. FRAZER, J. E. *The Earlier Stages in the Development of the Pituitary Body.*
5. WATSON, G. W., *and* STEWART, M. J. *Acute Colliquative Necrosis of the Spleen.*
6. HUGHES, G. S., AND POWER, D'A. *Acute Irreducible Intussusception in a Child Aged Six Months; Resection; Recovery.*
7. SCOTT, T. B., AND SCOTT, G. B. *A Record of the Treatment of Bacterial Infection by Autogenous Vaccines.*
8. DORR, A. *Fracture of the Cervical Spine; Operation; Necropsy.*
9. LOSHE, R. M. *Child Welfare and Industrial Insurance.*
10. WALLER, A. D. *On the Claim of Sir Charles Bell to the Discovery of Motor and Sensory Nerve Channels.*

1. In an excellent article, though difficult to review, Oliver considers the dangers of dust and various gases to industrial life, taking up the following headings: Smoke and pulmonary disease, harmful effects of road and street dust, dust, smoke and fumes and their relation to each other, the social influence of impure air, coal dust and its dangers, the prevention of explosions in coal mines, absorption of gas by coal, the causes of death in colliery explosions, the manufacture of lucifer matches and the abolition of phosphorus necrosis, the fumes of mercury and their effects, dust, disease of the lungs and tuberculous and miner's phthisis.

2. Robertson calls attention to two new organisms, not those of syphilis, which he believes to be the etiological factors in the causation of dementia paralytica and tabes dorsalis. He describes experimental work and the methods of staining. In treatment in early cases of each disease the antiserum he has used has brought about strikingly good results. (These observations are of interest but need further confirmation. [J. B. H.]

BRITISH MEDICAL JOURNAL.

SEPTEMBER 14, 1912.

1. SCHÄFER, E. A. *An Address on the Nature, Origin and Maintenance of Life.*
2. *HILL, L. *An Address on the Influence of Muscular Exercise and Open Air on the Bodily Functions.*

BRITISH MEDICAL ASSOCIATION.

SECTION OF ANESTHETICS.

3. BUXTON, D. V. *Introductory Remarks by the President.*
4. *ROOD, L., *et al. Discussion on Intravenous Infusion Anesthesia.*
5. WILSON, A., *et al. Discussion on the Examination of Patients by Anesthetists.*
6. LEEDHAM-GREEN, C. A., EHRENFRIED, A., AND KELLY, R. E. *A Comparison of Methods Employed for Inducing Anesthesia and Analgesia, Respectively.*
7. BAILY, L. W., *et al. Discussion on the Use of Alkaloidal Bodies Prior to Inhalation.*
8. *APPULEY, R. E. *The Effect of Chloroform and Ether on the Liver and Kidneys in Health, and Its Significance in Certain Infective Conditions.*
9. LEVY, A. G. *A Cardiac Effect of Adrenalin in Chloroformed Subjects.*

2. This paper, difficult of review, is an interesting discussion of the effects of muscular exercise and open air on bodily functions and disease. He discusses the prevalence of tuberculosis in Labrador where the inhabitants spend long hours in strenuous open air work but sleep in hermetically sealed, overheated shanties; he discusses the work done by miners and the effects of bad air, etc., on their health, going over the investigations of many others on this subject.

4. Rood discussed the advantages and disadvantages of the intravenous infusion method of anesthesia. A 5 to 10 per cent. solution of ether in salt solution is used. He reports results in 297 cases in which this method was used. The time needed to induce complete anesthesia was 2 to 4 minutes; in only five instances was there a stage of excitement and in only five any vomiting after etherization.

8. Appuley reports his experiments on animals and the pathological results in liver and kidney of the injection of varying amounts of chloroform and of ether. He compares these results with those after inhalations of ether and chloroform in sound animals, in animals previously infected with cultures of colon bacilli and streptococci and last with animals previously injected with glucose. [J. B. H.]

SEPTEMBER 21, 1912.

1. KEITH, A. *A Discourse on Modern Problems Relating to the Antiquity of Man.*
2. HOWELL, J. *The Chief Use of the Peritoneum. A Suggestion.*
3. *MCNEIL, C. *Tuberculosis in Infancy and Childhood. From the Standpoint of Preventive Medicine.*
4. ARMSTRONG, M. G. *The Subjective Method of Estimating Blood Pressure.*
5. DEWAR, T. W. *Whooping Cough Treated by Intravenous Injections of Iodoform.*
6. LINDSAY, J. H. *The Contagiousness of Leprosy.*
7. NICHOLLS, G. E. E. *Strangulated Inguinal Hernia in an Infant.*

SECTION OF PHARMACOLOGY AND THERAPEUTICS.

8. DIXON, W. E. *Introductory Remarks by the President.*
9. *GIBSON, G. A., *et al. Discussion on the Treatment of Non-Valvular Cardiac Disease.*
10. CLARK, A. J. *The Standardization of Cardiac Tonics.*
11. *PRICE, F. W. *Some Investigations of the Action of Digitalis on the Blood Pressure in Man.*
12. MARSHALL, C. R. *Clinical Experiences with Tetrahydropapaveroline Hydrochloride.*
13. GOULSTON, A. *West Indian Cane Sugar in the Treatment of Certain Forms of Heart Disease.*
14. BARR, J., *et al. Discussion on the Rôle of Calcium Salts as Therapeutic Agents.*
15. *WILLIAMS, O. T. *Cod-liver Oil and Its Action in Phthisis.*
16. MACALISTER, C. J. *The Action of "Symphytum Officinale."*
17. CHARTERIS. *The Comparative Value of Arsenious Acid and Salvarsan in Non-syphilitic Diseases.*

COMBINED SECTIONS OF STATE MEDICINE AND BACTERIOLOGY.

18. HOUSTON, A. C., *et al. Discussion on the Varieties and Significance of B. Coli in Water Supplies.*

3. McNeil in an interesting statistical paper compares the amount of tuberculosis, latent and active, in children in Vienna, according to Hanemgle's and Von Pirquet's investigations with his own on 371 cases in Edinburgh. Although the amount of infectious adult tuberculosis in Vienna is much greater than that in Edinburgh, and notwithstanding the fact that Edinburgh has a remarkably efficient system of control of tuberculosis, the percentage of tuberculous infection among the poor children in the first four years of life is distinctly greater in Edinburgh than in Vienna. This he lays to bovine tuberculosis from an improper milk supply. He urges further care in regard to this as one of the fundamental features of any anti-tuberculous campaign.

9. Gibson, Cushing, *et al*, discuss the relative worth of the well known and also the newer cardiac stimulants.

11. Price shows by a careful series of experiments that digitalis does not cause a rise in blood pressure by constricting the peripheral action, as was commonly supposed, and that it is quite safe to administer it, therefore, in cases of arterial degeneration.

15. Williams concludes as a result of his investigations that cod-liver oil has a definite effect in phthisis, that it has marked action on fat absorption and nitrogen retention. [J. B. H.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 34. AUGUST 22, 1912.

1. RIBBERT, H. *Thrombosis.*
2. SCHILLING, C. A. *A New Method of Immunization Against Trypanosomes.*
3. *CONRADI H., AND BIERAST. *The Excretion of Diphtheria Bacilli in the Urine.*
4. KOLLE, W., ROTHERMUNDT AND PESCHIE. *The Effect of Mercurial Preparations on Spirochete.*
5. v. MARSCHALKO, T. *Neosalvarsan.*
6. BRÜCKLER, O. *Anaphylaxis after Repeated Injections of Salvarsan.*
7. SCHRENK, T. *Melubrin.*
8. KOCHMANN, M. *Combination of Drugs.*
9. ELLERN, H. *Immunization against Hay Fever by Wright's Method.*
10. SCHLESINGER, E. *Paroxysmal Dilatation of Large Arteries.*
11. KÜSTER AND GEISSE, A. *The Bolus Alba and Disinfection of the Hands.*
12. HAGEMANN, R. *Fracture of the Femur with Contraction of the Knee.*
13. SCHULTES. *Early Diagnosis of Tuberculosis.*
14. DUTOIT, A. *The Role of Syphilis in Diseases of the Eye.*

3. The authors found diphtheria bacilli in the urine of 54 patients out of a series of 155 examined. This series included sick and convalescent patients. The bacilli were present in small numbers, but the authors believe that their findings make necessary the disinfection of urine from diphtheria patients. They also explain the diphtheritic infections of the vulva and skin on the basis of infection through the urine. [C. H. L., JR.]

No. 35. AUGUST 29, 1912.

1. CASPER, L. *The Diagnosis and Treatment of Hemorrhages from the Urinary Tract.*
2. *ROTHE AND BIERROTE. *The Type of Tubercle Bacillus Found in Lupus Vulgaris.*
3. CASTELLI, G. *Neosalvarsan.*
4. *FREY, E. *The Reason for the Strong Bactericidal Power of 70% Alcohol.*
5. KAUSCH, W. *Collargol in Sepsis and in Carcinoma.*
6. SCHIEDTMANN, W. *Peritoneal Drainage in Diffuse Peritonitis.*
7. WAGNER, A. *Retroperitoneal Hematoma.*
8. LOTH. *The Congenital Dropsy of Schridde.*
9. WÄTZOLD. *Chalazion.*
10. RHESE. *The Relation of Chronic Dacryocystitis and Nasal Disease.*
11. PEREIRA, R. *The Wassermann Reaction with Unactivated Serum.*
12. DIERBACH. *Eisenajodin in Scrofula.*
13. BRÜNING. *Acidosis.*

2. The authors examined 27 cases of lupus vulgaris to determine the type of tubercle bacillus present in the lesion. Twenty-three cases, or 85.2%, showed the human type; 4 cases, or 14.8%, showed the bovine organism.

4. Frey confirms the belief that 70% alcohol has a greater bactericidal power than either stronger or weaker solutions. He finds that medium strength solutions cause albumin to lose its power of swelling and its solubility in water, an effect which is less intense if weaker or stronger solutions be used. The minimum swelling and solution, as determined with serum albumin, is found in solutions of from 60 to 70%. Stronger solutions cause swelling of the albumin and tend to dissolve it, thereby losing some of their bactericidal action. [C. H. L., JR.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 39. SEPTEMBER 26, 1912.

1. *UNGER, L. *Contributions to the Pathology and Clinical Knowledge of the New-born. III.*
2. FRANZ, R., AND JARISCH, A. *Contributions to the Knowledge of the Serologic Diagnosis of Pregnancy.*
3. v. BENCZÚN, J. *Contributions to the Physical Treatment of Pulmonary Emphysema.*
4. SCHWARZ, G., AND NOVASINSKY. *Peculiar Roentgen Findings in the Large Intestines in Deep, Chronic Inflammatory Processes.*
5. HATIEGAN, J. *The Blood Picture in Struma and Basedow's Disease.*
6. DREY, J. *Passage of a Carcinomatous Polyp with the Stool.*
7. PASEHKIS, H. *Palmar Dysidrosis, a Cosmetic Summer Affection.*
8. LOEWENSTEIN, H. *The New Military Law and the Doctors.*

1. Unger reports 9 cases of true melaena neonatorum from Wertheim's clinic in Vienna [R. M. G.]

Miscellany.

A MOTOR HOSPITAL.

The following item from a recent issue of the *Scientific American* affords an interesting description of the latest French device in the domain of military field surgery.

"The manœuvres of the sanitary department of the military government of Paris, which take place annually at the Gravelle camp, were unusually interesting this year. The exercises included the establishment of a rescue service by automobile, a relay ambulance service and a temporary hospital, in addition to curious experiments in training dogs to search for wounded men. The most characteristic of these manœuvres was the extensive employment of automobiles for the expeditious rescue of the wounded.

"The most remarkable specimen of the new equipment is an automobile operating room, in which surgical operations can be performed at the battle-front in conditions as favorable as those afforded by a hospital. Severe abdominal wounds, which are very common in modern warfare, cannot be operated upon properly by the ordinary field service, and in many cases the removal of the patient is equivalent to a sentence of death.

"The new vehicle, which has a forty-horse-power motor capable of developing an average speed of twenty miles per hour, is furnished with all the accessories and the latest improvements of a hospital operating room. Its principal compartment, the operating room proper, contains an improved operating table and a wash basin supplied with sterilized water. In front is a smaller compartment, containing the sterilizing apparatus and the electrical apparatus, which is operated by the motor, whether the vehicle is in motion or at rest.

"A very ingenious arrangement enables the surgeon to locate the bullet accurately by the application of Roentgen rays. The operator, shielded from diffuse light by a photographer's hood, moves the fluorescent screen over the patient's body until the shadow of the bullet falls on a small hole at the centre of the screen. By inserting a pencil in this hole the position of the shadow is marked on a sheet of translucent paper, ruled in squares, which is placed under the screen. The angle of observation is then altered slightly and the new position of the projection of the bullet is marked in the same way on the ruled paper. From the distance between the two marks, the depth of the bullet can be obtained, by referring to a table computed in advance.

The operating room also contains a complete trephining apparatus, which is operated by a special motor.

"The vehicle carries an apparatus for sterilizing water by ultra-violet rays, for the use of the troops The water is drawn from any convenient brook or pond by an electric pump.

"A folding tent, for the shelter of patients before and after operation, is attached to each side of the vehicle

"The employment of automobile operating rooms of this sort would save many lives. In the recent war in Manchuria the mortality among the severely wounded was ninety per cent., because of the inadequate facilities for prompt operative treatment. This mortality could probably be diminished by two-thirds by the use of automobile operating rooms in which

operations could be performed in perfectly aseptic conditions, without loss of time, before the removal of the patient from the field."

FRENCH VITAL STATISTICS.

The Paris correspondent of the *Lancet* reports the following data of French vital statistics which give some insight into the hygienic problems and status of the nation.

"The Director of Public Assistance and Hygiene has issued a report to the Minister giving the sanitary statistics for 1906-1910, and detailing the lessons to be learned therefrom. The number of deaths varied from 773,400 in 1906, to 704,770 in 1910. The ratio of deaths per 1000 inhabitants varied during the same period from 18.6 to 17.98. The sanitary condition of France is relatively satisfactory so far as concerns epidemic diseases, although greater efforts must be made to check typhoid fever; but the deaths caused by epidemic diseases constitute a small proportion of the total death-rate—viz., 22,095 (of which 6000 were due to grippe) out of a total of 704,770, or 3.17 per cent. This is less than the deaths by violence (27,320), from infant diarrhœa (24,652), congenital debility (22,719), or cancer (31,303) and much less than those from tuberculosis (85,088). The report refers to the results obtained in France in the struggle against infant mortality. From 1906 to 1910 the number of deaths per 1000 children under one year has fallen progressively in France from 135 to 100. The year 1911, with its excessive heat, was a fatal one throughout Western Europe. The infant mortality, thanks to the efforts made both by the public service and by voluntary endeavour, was markedly less in France than in foreign countries. The following are the figures: France 66, Belgium 97, Germany 147, Italy 215. The general death-rate was higher than that of Germany, Switzerlandd, Belgium, England, and the Low Countries. Tuberculosis was the essential cause of this condition. It caused 85,088 deaths in 1910, or 217 per 100,000 inhabitants, as against about 160 in Germany, Italy, Spain, and the Low Countries, 146 in England, and 139 in Belgium, the evil wrought by tuberculosis among the French affecting especially young men. Out of 100 Frenchmen dying between 20 and 39 years, more than 42 died from tuberculosis. Finally, the report points out the correspondence existing between those departments with a high tuberculosis death-rate and those with a large consumption of alcohol. Alcohol not only plays an important part in the 85,000 deaths from tuberculosis, but also it furnishes a notable contingent to the 27,320 deaths from violence, the 7395 due to hepatic cirrhosis, the 22,719 of congenital debility, the 88,033 deaths of children under one year, and to all those deaths registered under the collective heading of 'other causes.'"

RESOLUTIONS ON THE DEATH OF DR. F. W. BRETT.

It is with profound sorrow that we record the death of our esteemed associate, Frank Wallace Brett.

Dr. Brett was born in 1861. His early youth was spent in teaching. He began the practice of medicine in 1894 in South Braintree and continued in active practice until his death. His genial disposition and sterling manhood won him many friends and he was respected and loved both by his fellow physicians and the community at large.

In the death of Dr. Brett, the Norfolk South District Medical Society has sustained a great loss. He was always a faithful member and a profound student. He was a man of irreproachable integrity, fine feeling, sympathetic manner and high ideals.

Dr. Brett was one who devoted much time and heart interest to more than one line of human uplift and the cultivation of an ideal professional and home life. He was one who realized in his own life and made others realize that "All the way to Heaven is Heaven."

Dr. Brett died at his home in South Braintree, August 31, 1912.

(Signed) C. A. Sullivan, M.D.
John H. Ash, M.D.
H. L. Dearing, M.D.
Committee.

SOCIETY NOTICES.

Suffolk District Medical Society.—The Stated Meeting will be held at the Boston Medical Library, 8 The Fenway, Saturday, October 26, 1912, at 8.15 p. m. Paper by Dr. Samuel Robinson, "Ether Anesthesia by the Intratracheal Method. Discussion by Drs. W. C. Quinby, F. L. Richardson, Freeman Allen, Albert Ehrenfried, C. A. Porter, F. B. Lund, E. J. Cotton, E. A. Codman and W. M. Boothby.

Business: Elections of Nominating and Auditing Committees. Refreshments after the meeting.

(Sect. VIII of the By-laws: "The Stated Meeting shall be held on the last Saturday in October." Please note that the date given for this meeting on the announcement of meetings for the year is incorrect.)

Frank B. Harrington, M.D.
President.
Walter C. Howe, M.D.
Secretary.

Massachusetts Medical Benevolent Society.—The Annual Meeting will be held at the Boston Medical Library, at 5.30 p. m., Thursday, October 31, 1912. The Council will meet at the same place at 5.15 p. m. It includes the following officers: President, Vice-president, Treasurer, Secretary, and the following Trustees: Drs. E. G. Cutler, F. B. Harrington, M. V. Pierce, F. W. Taylor, S. A. Houghton, E. Flagg, R. M. Green, F. Dexter, F. H. Brown.

Robert M. Green, M.D.,
Acting Secretary.

October 21, 1912.

CENSORS' EXAMINATION.

The Censors of the Suffolk District Medical Society will meet to examine candidates for admission to the Massachusetts Medical Society at 8 The Fenway, on Thursday, November 14, 1912, at 2 p. m.

Candidates, who must be residents of the Suffolk District, or non-residents of Massachusetts, should

make personal application to the Secretary, and present their medical diplomas, at least three days before the examination.

For further particulars, apply between 2 and 3 p. m. to

WALTER C. HOWE, *Secretary*,
303 Beacon Street.

RECENT DEATHS.

DR. FRANK S. BILLINGS, who died on Oct. 14 in Sharon, Mass., was born at Boston in 1845. He was for many years director of the Nevada State Veterinary Hospital, and was the author of several textbooks on veterinary medicine. He retired from active practice in 1899. He is survived by his widow and by one daughter.

DR. HENRY CHAVANNE, of Salem, N. J., a graduate of the Jefferson Medical College, Philadelphia, in 1887, died on Oct. 16.

DR. THOMAS J. DILLON, who died of lingual carcinoma on Oct. 16 in Boston, was born at Dublin, Ireland, in 1862. He studied medicine at Trinity Colleg, in his native city, and after qualifying before the Royal College of Physicians, served for some years as medical director of the town of Lowestoft, England. In 1893 he came to the United States, settling at Boston, where he practised successively in Brighton and in Roxbury. From the latter district he was later appointed examining physician to the Boston Board of Health, a position which he continued to hold at the time of his death. He was a Fellow of The Massachusetts Medical Society. He is survived by his widow, one daughter and three sons.

DR. WOOSTER P. GIDDINGS, who died October 16 at Gardiner, Me., was born in Newburyport, Mass., on May 11, 1840. His boyhood was spent on a farm at China, Me., and he prepared for college at North Hampton, N. H. In 1870 he received the degree of M.D. from the Harvard Medical School, and the following year began the practise of his profession in Waltham, Mass. He removed to Gardiner, Me., in 1882. He was president of the Maine Medical Association, and was for many years a United States examining surgeon. He is survived by his widow, one daughter, and one son, also a physician.

DR. BEVERLY E. MEAD, who died last week at Greenwich, Conn., was born in 1832. He had actively practised his profession of dentistry for over fifty years. He is survived by his widow, one daughter, and one son.

DR. HENRY ELIJAH OWEN, of New York, died suddenly on Oct. 12, in the seventieth year of his age. He was graduated from Yale in 1864 and from the College of Physicians and Surgeons, New York, in 1867; after which he served as interne in Bellevue Hospital.

DR. ARTHUR PARSONS, who died on Oct. 16, at Whitman, Mass., was locally well known as a veterinary surgeon.

DR. ARTHUR RICKETSON, who died of cerebral hemorrhage last week at New Bedford, Mass., was born in that city in 1835. He was educated at Friends Academy and received the degree of M.D. from the Harvard Medical School in 1860. During the Civil War, he served as assistant surgeon aboard the W.S.S. *Nightingale*, and later on the U.S.S. *Relief*.

DR. BENJAMIN ROPES SYMONDS, who died on Oct. 15, in Salem, Mass., was born at that city in 1857. He received the degree of M.D. from the Harvard Medical School in 1883. After serving as house surgeon at the Rhode Island General Hospital, he practised his profession for a time in Providence, R. I., but later removed to Salem, Mass., where he was for many years city physician, later a member of the local board of health, and for some years assistant surgeon and surgeon of the Second Corps of Cadets. He was also on the surgical staff of the Salem Hospital. He was a member of the American Medical Association, a Fellow of The Massachusetts Medical Society, a member of the Essex South District Medical Society, and of the Harvard Medical Alumni Association. He is survived by his widow and by three children.

BOOKS AND PAMPHLETS RECEIVED.

Notes on Hospital Planning by S. S. Goldwater, M.D. Reprint.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, OCT. 12, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	11	2
Chicago	612	193	Waltham	10	2
Philadelphia	—	—	Brookline	4	1
St. Louis	—	—	Chicopee	7	4
Baltimore	—	—	Gloucester	—	—
Cleveland	—	—	Medford	7	2
Buffalo	—	—	North Adams	4	0
Pittsburgh	—	—	Northampton	7	0
Cincinnati	—	—	Beverly	6	—
Milwaukee	—	—	Revere	—	—
Washington	—	—	Leominster	—	—
Providence	—	—	Attleboro	3	1
Boston	216	66	Westfield	2	1
Worcester	38	11	Peabody	—	—
Fall River	38	24	Melrose	6	—
Lowell	31	14	Woburn	—	—
Cambridge	26	4	Newburyport	2	2
New Bedford	22	14	Gardner	2	0
Lynn	22	7	Marlboro	3	0
Springfield	18	7	Clinton	4	—
Lawrence	27	12	Milford	—	—
Somerville	14	3	Adams	1	0
Holyoke	17	6	Framingham	—	—
Brockton	19	5	Weymouth	—	—
Malden	16	5	Watertown	3	2
Haverhill	22	4	Southbridge	3	—
Salem	14	6	Plymouth	—	—
Newton	9	5	Webster	1	1
Fitchburg	10	4	Methuen	—	—
Taunton	8	0	Wakefield	1	—
Everett	5	3	Arlington	5	1
Quincy	—	—	Greenfield	11	—
Chelsea	11	3	Winthrop	—	—

Original Articles.

MEMORABILIA: EXTRACTS FROM MEDICAL NOTES MADE BY THE LATE HENRY INGERSOLL BOWDITCH, M.D., OF BOSTON.*

BY VINCENT Y. BOWDITCH, M.D., BOSTON.

The title of my paper is the result of looking over a series of manuscripts prepared as a *résumé* of his "Life Work" by my father for his Harvard Class Report Book. I found among them several short articles which contained much that was interesting in giving the personal touch to various medical subjects, and I then conceived the thought of placing a few of them before this Association, the objects of which always had his cordial sympathy. In selecting these extracts I may be accused of going outside the strict limit of subjects supposed to be touched upon by our society; but as they bear upon the life work of one who took such keen interest in our transactions and who offered to us in 1889[1] the last and perhaps the most picturesque paper of his life, I have felt justified in deviating slightly from the usual custom.

The paper I refer to was entitled "Open Air Travel as a Cure for Consumption," a record of the life of his own father subsequent to severe pulmonary hemorrhages at the age of thirty-five. Some of us will remember the picturesque account of the long buggy-ride taken by his father through New England in 1808, covering a period of many weeks after his illness; of the successful result, and the fact that he died, an old man, thirty years afterwards, of another disease, the cicatrix of the old pulmonary lesion having been found after death. The salient point of this interesting paper was the insistence upon the importance of fresh air, regular, judicious exercise and simple, nutritious diet, all elements of general hygiene, which seemed to have been insisted upon by a wise physician living in the early part of the last century and carried out faithfully by his patient. The paper has proved a classic in giving evidence of the truths contained therein, while couched in language that holds the attention as something unusual in its manner of expression.

One of his first notes refers to his translation of the great Louis' work upon "Gastro-Entérite" (Typhoid Fever) which he published in 1836. Incidentally he speaks of Louis' methods and of his deep affection for his great master. He writes in 1885:—

"My first thought on my return from student life in Paris (1832-34) was to give to the English speaking people a translation of this great work, which, with the 'Numerical System' (of which the volumes are an admirable exposition), has had greater influence towards a more scientific study of Medicine than any work that has, in modern times, been published. '*Perpendendae et numerandae Observationes*' was the motto of the '*Société Médicale d'Observation,*' which Louis founded, and of which he was 'Perpetual President.' By the influence of that Society in Paris, and similar ones in other cities he hoped to introduce more accurate observations of disease and, in numbers, to express the frequency, etc., of every symptom and of the lesions found after death. None but those who loved the naked truth more than their own fancies or ill-recorded data could easily bear the criticisms made at the meetings; still less could they have a kind of grim satisfaction in them as vehicles of immense good to every one present, more especially to the reader himself. For many months I was a member of the Society, and under the teaching of this excellent man. His influence I feel now (1885) as great as ever it has been during my life, and it is seen in every medical paper I have written. The 'Société' considered me worthy to be one of 'elect.' At the reading of my first paper before it, there were, I think about twenty seated at a table of horse shoe form. Each one had paper and pencil before him. Louis, in the centre of us, presided. I gave the final summing up of the paper's short-comings. It was one of the sacred rules that each one should feel himself bound to notice every deficiency in the 'Observation' presented, and to openly give his criticisms. Anyone who feared injuring the feelings of the writer and should neglect this criticism would be deemed unworthy as a member. Any one 'thin skinned' enough to be hurt by the severest examination was considered a fool, totally unable to appreciate the fine *tonic* effect of a pure, friendly, but sharp, criticism from others; all equally desirous with himself of arriving at sacred truth. How well do I remember my first ordeal, and Louis' pungent *critique* upon a certain part of my paper, and his conclusion; that 'as Mons. Bowditch had not recorded certain data about the heart he might as well have omitted all mention of that organ.' I thought then and I still think that meeting one of the most refreshing and invigorating I had ever attended. It was really an intellectual 'bitter tonic,' and I was soon feeling prepared for another trial, with the determination to out-do myself. Louis, (dear friend, as he was) seemed to fear that the criticisms had, perhaps, been hard for me; and before the next meeting was called to order, he smiling said, 'Well, my dear, we attacked you severely last evening; but you must remember that we never can criticise anything that is not good.' Politesse Française! qu'elle est aimable!

"Under such influences, and in Louis' 'Clinique' daily I spent two years of the most delightful of my life. It was only a continuation of the same influences, when I undertook the translation of Louis' works." (1836)

The next note refers to his experience in studying the development of the ova of the lymnaeus or common snail under the microscope. This work, exquisitely illustrated in pencil by his

* Read before The American Climatological Association at Hartford, Conn., June 11, 1912.

[1] Transactions of The American Climatological Association, 1889.

wife, gives evidence of the patience of both in watching for several seasons the gradual growth of these little creatures. He says:—

"A series of annual microscopic studies of the minute, transparent ova (of the snail), was not only a delightful study and illustration of the Cell Theory, but a constant source of religious inspiration far above creeds. I saw an egg shell, with its little mass of granules; *apparently* at rest, but really from the earliest hour of birth beginning its circular movements upon itself and also gyrations around within the shell. At first this movement was so slow that it could not be recognized save by placing it in a certain part of the field of vision, and examining again after the lapse of some minutes. As Agassiz admitted when I said it *seemed* like planetary law, and he replied, 'Yes, Doctor, it is the same that governs the Planetary bodies.' Out of these movements and its *unseen* 'principle of life' through cells and secondary cells inside of the larger ones, I saw organs develop themselves in most perfect beauty. What was more, I saw *function* showing itself in the *unformed* cells; for example in the heart, one of the most exquisite of structures, with its auricle and ventricle and its opening and closing auriculo-ventricular valve,—which it seemed as if I could *auscult;* as I do the sound of the human heart! I had become so acquainted with the various processes and the places in the midst of still unarranged cells, where the organ would appear, that, in fancy, I placed the perfect organ there. One day, when thus thinking and looking, a sudden contraction of the bunch of cells took place. I said, 'How Fancy deceives even our own senses! I must have been mistaken,' and the part rolled out of sight. On watching farther, however, and upon several occasions, I learned this fact that *function* is implanted in the future organ *even before it is formed!* I was able by having proper apparatus and a number of microscopes to show the gradual development of the little creature until by its spikey tongue, it tore its way into the external world,—not larger than the most minute grain of sand and only really recognizable by the microscope. My scientific knowledge and my religious nature were alike improved by this study. And I never heard or read a more eloquent series of sermons than were given by these scientific studies in the Springs of several successive years (1845-6-7-8)"

In the third note, which contains a therapeutic suggestion quite within the lines of our practice in this association, his allusion to Amos Twitchell, of Keene, N. H., one of the best of men and among the cleverest of physicians in the middle of the last century, has a quality which is of interest to our profession. In speaking of the Memoir of his friend which he was asked to prepare, he says:—

"Dr. T. was one of the most remarkable men I have met either in or out of the Profession. He was a *massive* man in every way. He was the classmate and friend of Daniel Webster. As a surgeon, he was imperturbable; fertile of resources and in unexpected cases never at a loss. He would defy all the stereotyped rules of surgery, when he met an unusual accident. Instead of letting the patient die by the 'Providence of God' he would attempt, at least, to save him by the sagacity of man. His ability was never more splendidly shown than when he tied up the carotid artery, which previously good surgery forbade, and thereby not only saved the youthful sufferer, but gave a new practical rule for surgeons instead of an effete dogma, founded on theory rather than experience. At one time, he drove in his 'one hoss shay' in a circle, with a more than fifty-mile radius. He was so well known, and everywhere could claim a relay so promptly, that he would arrive as punctually at a great distance, as we now do by our railroad devices. He was a kindly man and yet such a hater of shams that he has left phrases behind him that sparkle with a spice of bitterness. 'That man cheated me,' he would say, 'worse than the Deacon would.' He was a great joker and even late in life practised jokes upon his townsmen when a fit occasion arose. He hated rum and tobacco and always was a great preacher against both, when surrounded by his friends and neighbors near the tavern, in early days, and at the depot during his later ones. He studied nature rather than books. For years, in the summer, I loved to meet him at Keene and listen to his words of practical wisdom, and to gain cheerfulness of spirit from his overflowing fund of humor. To him I owe the *one* recipe that scarcely ever fails me. It seems but yesterday I met him at the depot. I was just leaving for Boston after a visit of two weeks at that (then, certainly) delightful spot, Keene, N. H., famous, in my eyes, for its sweet homes of lovely and intelligent women and of solid men of sense and of whom Twitchell was *'primus inter pares.'* Suddenly he said, 'If you ever have a *rheumatic* case of *orthopnoea* I want you to try a pill, I am sure you will find useful. I received it twenty-five years ago from Prof. Nathan Smith of New Haven. He had used it twenty-five years with great satisfaction.' I (H. I. B.) have used it at least thirty-five years*, so that the combination has a 'pedigree' of at least eighty-five years' use, by three men (I trust I may say) of common sense, and of large practice, and two of them (Smith and Twitchell) giants in their days. I have not known the remedy to fail wholly, in a case of orthopnoea, in which the *heart's* action was chiefly at fault, whether the difficulty was organic or functional. Some may smile at this proclamation of the virtues of a pill! 'Garrulous, foolish old man' may be the

* ℞ Pulv. Digitalis, gr. x; Pulv. Colchici, Sem., gr. xx; Sod. Bi-Carb., gr. xxx; in 20 pills or powders,—one three times or more daily.

☞ Let none but the purest articles be put up by perfectly honest druggists.

thought of many. But the fact that, many times during these thirty-five years, I have been able to relieve most horrible distress and to restore to life and to the blessed power to work again in this world, is my excuse. Those acts have been among the most pleasant of my 'life work' in my profession to recall, and to Nathan Smith and Amos Twitchell I owe them all. I commend the combination to my successors in medicine in the full conviction that if used properly by intelligent physicians, I am bequeathing to them what will relieve an immense (amount) of human sufferings in all time to come. This may seem strong language; but, if my experience teaches me anything, it is true."

In his fourth note he wittily alludes to his "romantic" experience with a case of Diaphragmatic Hernia!

"A spice of what I call the 'Romance of Medical Practice' is connected with this pamphlet of 77 pages and which I prepared, *'con amore,'* and did not know how to publish it until my friend, Dr. J. C. Dalton, the eminent physiologist, saw it in my hands and begged me to allow him to print it in the *Buffalo Medical Journal* of which he was Editor.

"The 'Romance' of it is as follows: In going, with a class of students around one of the surgical wards of the Massachusetts General Hospital in order to study healthy lung and heart sounds, I observed a young man lying down who had recently received a serious shock from a fall. As he was not suffering acute pain or apparent distress from the accident, I said to the students, 'I am going to see whether the heart sounds are affected.' On auscultting the left side of the chest, I was astonished that instead of the beatings of the heart I heard nothing but sounds heard as, in the abdomen, of air in the intestines, while the heart was fairly dislocated to the right breast. Jumping too readily to a conclusion, I said, 'As the middle of the back is the seat of the injury, the diaphragm was probably ruptured and the intestines have fallen into the left thorax and now occupy the whole space usually taken up by the left lung and heart.' Of course it was of great interest to have an autopsy, when the patient died a few days afterwards, but the friend declared it should not be made. Late at night, by the light of a full moon, I entered the window of the autopsy room and by the same, found, what the absence of severe thoracic symptoms ought to have led me to the suspicion of perhaps, but certainly should have prevented my wrong diagnosis, viz., of *recent* rupture of the diaphragm:—I found almost complete absence of the left side of that important muscle. The case interested me very deeply, and I looked in books and journals, American and foreign, for others similar. Between 1610 and 1846 I could find only eighty-eight cases. These I tabulated according to the 'Numerical Method' of my dear master Louis, and tried to extract from them all the truths they contained, anatomical, symptomatic, and causes; with diagnosis and prognosis as to the duration of life and treatment. I had a most delightful work, away from all the cares of common and professional life. I knew I was doing what had not been done before, and I knew that I must necessarily make a compact expression of the truth on the subject which would be worthy of respect and useful to any physician who should meet such a case. In my preface to the pamphlet (p. 77) that I printed from the *Journal* I closed with these words, 'I hope that the memoir will be useful to the future student of Diaphragmatic Hernia, but the examination of it can never afford anyone a tithe of the pleasure or profit the original preparation of it afforded me. July 4, 1853.' I could not but feel gratified to read in the *London Lancet*, Dec. 8, 1883, (30 years after the pamphlet was published) the following allusions to it and to myself. It is contained in an 'Address on the Place of Literature in Medicine,' read before the Medical Students Debating Society, at Owens College, Oct. 22, 1883 (*London Lancet*, Dec. 8, 1883; referred to by *Philadelphia News*, Jan. 12, 1884). The *News* had at the heading of its notice, 'An Englishman's Opinion of some American Work.' The writer of the Address (Dr. Cullingsworth) presents as his motto for the young men before him the noble words of Fichte, viz., 'To this end am I called, to bear witness to the truth. My life, my fortune are but of little moment. The results of my life are of infinite moment, I am a priest of Truth; I am in her pay. I have bound myself to do all things, to venture all things; to suffer all things for her sake.' During the address Dr. C. pays a high tribute to the 'Numerical System.' Of course the words of a speaker of this high tone gratify me when he says, 'One of the best Medical Monographs with which I am acquainted is on Diaphragmatic Hernia by Dr. Bowditch of Boston, U. S. A. In this little book, scarcely larger than a pamphlet, is brought together all that, by the most patient research, could be found relating to the subject in Medical Literature during the period from 1610 to 1846. Such work soon becomes intensely interesting as I can testify from my own experience; and that Dr. Bowditch found it so appears from the concluding sentence in his preface in which, after expressing a hope that it will be useful to the future students, he declares,'—(here the writer quotes what is given above,—the final words of my Preface). Truly the beginning and final outcome of my labor have a touch of the 'romantic' about them. Its commencement was truly such; for did I not 'meet it by *moonlight alone?*' Certainly no lover's heart ever palpitated more strongly than mine did at that hour."

The last note which I present to you touches upon Thoracentesis performed with an explor-

ing trocha and suction pump, a subject and operation which doubtless brought Dr. Bowditch's name into prominence more than any other single work of his medical career. Although numerous papers have appeared on this subject, the following note throws such an interesting personal light upon the obstacles which any reformer has to meet and has so much pungent satire in its criticisms of those who opposed him at first, that I offer them to you now for your delectation.

"The history of my connection with this operation is as follows. I came from Europe holding the general views of the profession, viz., that it was not to be performed save in the most severe cases and generally when nature herself was 'pointing' as in abscess in other parts. But I was led, after a few years of practice and of seeing autopsies at the Massachusetts and Chelsea Hospitals, to believe professional opinion was incorrect. I saw not a few cases of pleuritic effusion end in death and nothing was found but simple serum filling one pleura and without a trace of disease elsewhere. I said to myself, 'Cannot surgery be called to the relief of these sufferers?' I well remember one case, which I was sure was about to terminate fatally if relief were not obtained, and I urged the surgeon (one well-known and capable, and willing to be a surgeon in all other cases which were deemed feasible and right by the profession) to plunge into the chest a common trochar and, perhaps, save a life which otherwise was surely going to perish. He positively declined. After some months this patient died, worn out; and we found the left side of the chest (pleural cavity) stuffed full of simple serum. Not a trace of inflammation of the parts was found, or of disease elsewhere. This case and others like it made a deep impression, but I had no case under my own care. Moreover I shrunk from surgery, as painful to me. In 1848 I had one patient in my charge as one of the attending physicians at the Massachusetts General Hospital. He had one side of the chest distended, following acute pleurisy. On a consultation held by the physicians and surgeons I was in a minority of one. The others refused. No operation. Death occurred after months of suffering. Soon afterwards, having another case under my charge at the hospital, I determined to ask for no consultation, but to take the responsibility of having the operation of thoracentesis done. And it was done well (as always was the case with Dr. John Collins Warren) by cutting down and making a long incision between the ribs, and all before ether was thought of, so that intense suffering was the result. I said to myself, 'You surgeons must find out some way easier than this, before I shall advise anyone to submit to it.' Meanwhile I was hearing of some few persons operating in Europe with a trochar and canula, and I determined to advise their use in a subsequent case. In 1849 I saw a child with evident effusion in one pleural cavity. She had had several severe attacks of difficult breathing. I advised puncture, but a surgeon having been summoned, declined to operate, and advised *to wait for dyspnoea* before doing so. Within forty-eight hours the child suddenly died in another fit of difficult breathing. I was allowed to plunge in a trochar after death, and pure pus *gushed out*. All these events confirmed my idea that an opening should be made in any case, on which *I* had any opinion to give and that the common trochar should be used and not the scalpel. About this period I heard that Dr. Morrill Wyman of Cambridge (contrary to the advice of the seniors of the medical profession) had operated with the happiest result and with scarcely any pain with an *exploring trochar*, to which he had temporarily attached a strong English stomach pump which enabled him to draw fluid and, by turning a valve, discharged it with great ease. That was the instrument which I *felt*, although I had not seen it, which combined all that was needed to make an operation a perfect success,—powerful, simple, almost painless, and leaving no opening behind when finished. I determined to appeal to Dr. Wyman, though living in Cambridge, as no one in Boston could or would help me. In 1850, April 17, Dr. Wyman operated for me on one of my patients at Woburn. I then made up my mind that I could not always send four miles for a surgeon and though the act would be very unpleasant to me *I must prepare to operate*. My lessons on auscultation, my 'Young Stethoscopist', published in 1846-48, had led the profession to think, though a general practitioner, I was interested, especially, in thoracic diseases. I must be prepared to do all that was needed in such cases. The occasion came in October of the same year to test my ability to act up to my determination. A seaman from Wellfleet I found with cardiac disease, but also with one pleural cavity distended with fluid. He had terrible orthopnoea. (I should mention that a short time previously, I had had an instrument devised, whereby the canula could be screwed to the pump instead of with cork as Dr. Wyman had). So fearful was I, however, of ill success in that simple puncture that I took with me a young surgeon, a former student and friend of my own. To him I confided my fear of ill success and told him that if, at the last moment, I lost courage and bungled at the operation I wished him to take the trochar and plunge it into the throax '*capulo tenus.*' Fortunately all went well and *I had conquered myself, and was a man.* From that time to this, May 16, 1888, I have operated on 253 patients, and 395 punctures have been made. I believe I have contributed towards the reversal of the opinion of the medical public on the subject of Thoracentesis in the country and in England. I feel thankful that I have been able to fight (for it was a fight)

against ridicule and contempt of able surgeons of Boston who could not believe that a non-surgeon could teach them anything. This opposition was carried to so great an extent that one of the Magnates, two years after the innocuousness of the operation and its great value were acknowledged by most other intelligent and unbiased men of the profession, actually caused the death of a little child, to whom he had called me, by delaying in the room below the little sufferer's, to talk of the 'dangerous' operation. While talking thus, an attendant burst into the room crying, 'For God's sake come up, we fear the child is dying.' We went up instantly, and indeed the last gasp was taken as we entered the room. Thus it is always with Truth,—she has to *fight* her way. My Antislavery fight had given me some nerve, and this subject of Thoracentesis, simple and so beneficent as it seems now, strengthened me still more. I have often in both of these lines of life felt within myself a sort of what old poets would claim a 'divine afflatus,' and when opposition has come I have said, 'You must take it whether you will it or not. It is God's truth.'

"Since those early days, it will be seen by those who look into the histories of the various years, that I have been constantly at work upon the subject, and articles have been published by me in America and in Europe, and that I have made it the subject of addresses and communications to various societies,—American Medical Association, New York Academy of Medicine, and Massachusetts Societies, etc. I have in fact never let an opportunity escape of telling what I learned from year to year. My ideas have become widened, and I found out that the operation which I deemed 'Mediaeval'-like and cruel, viz., cutting down between the ribs, as Dr. Warren did when I asked him to operate, is not only legitimate in some obstinate cases, but that a portion of one to four or five ribs may be taken, and to the real salvation of a patient. That a removal of parts of two ribs is consistent, with the vast advances made within the last few years, in surgery, I know is safe. I advised it in one case, which I think would never have recovered if that operation had not been done. As it happened, nothing but the external scar remained finally to mark the spot, the lung underneath being almost exactly like that on the other side; and no real contraction of the chest was the result. To say that I am not satisfied with this portion of my Life-Work would be untrue, and yet I see how I was led by a series of circumstances of which I had not apparent control up to these pleasant and humane results. From these operations on the chest many lives will hereafter be saved who without them will die."

My father was never one to dispute with others over priority of claim to any act or deed of his. At every opportunity he acknowledged his debt to Dr. Morrill Wyman, of Cambridge, for the first suggestion of an instrument which in a modified form he used afterwards in hundreds of cases and forced upon the attention of the medical public. The fact that Dieulafoy, several years later, long after the first published accounts of my father's cases, claimed to be the first to use thoracentesis by aspiration when he introduced his excellent instrument to the world, was an instance of the singular indifference, to say the least, shown by some continental members of the profession to the work of their brothers outside of their own country. The fact was one only to cause amusement to my father and he never attempted to push his claim. It remained for his friend, the late Sir William T. Gairdner, of Edinburgh, who was one of the first to recognize the worth of my father's work, to mention in a memoir he wrote of his friend in the *Edinburg Medical Journal* of April, 1892, this singular lack of justice as exhibited by the eminent French physician.

Inasmuch as one or two medical papers have within recent years been published in which reference has been made to Dieulafoy as the *inventor* of thoracic aspiration, without any allusion whatever to the exhaustive work of my father upon the same subject years before, I feel I may be pardoned for showing some filial zeal in reviewing the subject again as a matter of justice.

The chief fact remains and that is after all the best to consider, apart from all personal considerations,—thoracentesis has brought relief to thousands of sufferers and saved lives without number. It is hard to believe that such a simple operation as it may be now regarded, to be performed by any practitioner of common sense and judgment, should have had to be forced upon the attention of a skeptical and prejudiced public of fifty or sixty years ago.

SOME OBSERVATIONS ON CASES OF PROSTATIC OBSTRUCTION PRESENTING OVERDISTENDED BLADDERS.*

BY ARTHUR L. CHUTE, M.D., BOSTON.

THE more I see of prostatic cases the more I am convinced that we as urinary surgeons have not sufficiently impressed upon the medical public the tremendous importance and significance of the overdistended bladder in cases of prostatic obstruction. In our enthusiasm for perfecting operative measures for the relief of this condition I feel that we have not put sufficient emphasis upon what one may call an even more fundamental point than the sort of technic that one shall employ in operation. The functional result we get after an operation for the relief of prostatic obstruction, I grant you, depends upon the correctness of our operative technic, but whether the patient lives or dies depends much

* Read at the annual meeting of the American Association of Genito-urinary Surgeons, Philadelphia, June 8, 1912.

more on whether or not the patient has an overdistended bladder, and the renal condition that so often accompanies it.

As the bladder is merely an organ of convenience, its overdistended and atonic condition would amount to little if the effects were confined to the bladder itself, but they are not. In practically every prostatic, in whom the bladder has become overdistended and atonic, there takes place in time an incompetence of the sphincter of the ureter. This depends upon the fact that the fibres that give the sphincter action to the lower part of the ureter are inserted into the wall of the bladder, and any continued overstretching of the lower segment of the bladder wall is attended with loss of function of these fibres. With the giving away of the ureteric orifice there follows a dilatation and atony of the muscular wall of the ureter and kidney pelvis, with the result that the secreting tissue of the kidney is affected by back pressure.

We see what I believe are two types of this back pressure from an overdistended bladder: the aseptic that is not always recognized and is by far the more dangerous type; the suppurative that is bad enough, but whose presence is evident from a very slight examination of the urine, and in which the patient has developed a certain immunity to infection.

I am in doubt as to whether we should consider the aseptic condition simply an embarrassment of kidney function, or whether we should consider it a form of nephritis. I believe the latter is the more accurate interpretation. I have no pathological evidence on this point, as the patients whom I have lost from this condition have either not come to autopsy or have presented the infected kidneys that so quickly follow almost every surgical procedure in these cases of aseptic back pressure. However, the slight trace of albumin, the polyuria, the low solids, the occasional presence of a few casts, I believe point to definite tissue changes in the kidney: to a type of nephritis. That this condition is not a nephritis of the interstitial type is evident from the low blood pressure that I have found in instances of this sort. The great improvement, too, that these patients show after relief of their back pressure points to the fact that in addition to the nephritis there is a considerable embarrassment or interference with the renal function that depends upon the element of back pressure alone and from which recovery is rapid.

In the second type, the suppurative, there is no doubt as to the nature of the renal lesion; it is a frank suppurative pyelonephritis.

The thing that makes these prostatics with back pressure especially dangerous is the fact that they are often bordering on uremia without showing marked symptoms. This is especially true of the aseptic cases. Ether, which is used as an anesthetic in far the greater number of prostatic operations, is very likely to precipitate the uremia. The recognition of this condition and its appropriate preliminary treatment allow one to operate safely in a considerable number of instances where one otherwise could not. I do not believe, however, that any amount of care and preliminary treatment will allow one to operate safely on all these patients. In some the destruction of kidney tissue has gone too far.

The difference in the *mortality* of the occasional prostatic operator and that of the man who operates frequently is largely due, I believe, to a failure on the part of the occasional operator to recognize this renal condition, or if he recognizes it, to justly estimate its dangers.

I wish to report several cases of this sort that for the most part have come under my care relatively recently, and to draw attention to some points that I think are of interest and importance.

The two types of cases will be considered separately, as they present differences in the diagnosis, prognosis and treatment.

CASE I. A physician of fifty-nine whom I saw in November, 1911. For a year or two this patient had gotten up once at night to urinate. Occasionally he had wet his bed a little, but he had never had any urinary pain or frequency of urination. In the spring of 1911 he was passing a low gravity urine in very large amount, almost four quarts. He was very fat and the overdistended bladder was not discovered. In the presence of a small prostate and very marked digestive symptoms a diagnosis of diabetes insipidus was made and the patient was sent to Europe for a rest. He was placed on a "salt free" diet, and with the exception of one or two upsets got on very well during the summer. When I saw this man in November, 1911, his overdistended bladder had been found, but the absence of urinary symptoms and the prominence of gastric symptoms had raised the question whether this was not an intra-abdominal growth.

This man was nauseated, had a dry tongue, a bad tasting mouth and was rather twitchy. He passed on his first day in the hospital 44 ounces of transparent urine having a specific gravity of 1010, urea 1.67 per cent.; it contained the slightest possible trace of albumin and showed a little normal blood, a few leucocytes and an occasional cast. He had a feeling of fulness in his abdomen but no pain.

The gradual withdrawal of his residual was begun. Every precaution that I knew was observed. By the third day his urine had begun to be a little hazy. On the fourth day his emesis had stopped, but his twitchings continued. On the sixth day his bladder was completely emptied: 37 ounces in the morning, 47 in the afternoon. That evening he had pain in his bladder. The seventh day constant drainage by catheter with a little bladder pain and a slightly blood stained urine.

On the tenth day, because of trouble with the catheter blocking, it was inserted well into the bladder, beyond the outlet, a manoeuvre that insures less trouble from blocking but necessitates leaving a small amount of urine in the bladder. His blood pressure at this time was 140 mm. of mercury.

By the twelfth day he was passing 105 ounces of

turbid urine, with a small trace of albumin, sp. gr. 1009, urea 1.51 per cent. He was at this time excreting 1 gram of salt in each 500 cm.³ of urine, while a short time before he had required 1000 cm.³ to excrete the same amount. His nausea had ceased, his tongue was moist, his appetite fairly good, and he was having no twitchings. This man's impending uræmia had apparently been warded off, and I felt that in a short time I could safely remove his prostate under spinal anesthesia.

On the fifteenth day he passed 112 ounces of urine having a specific gravity of 1011, and containing 1.39 per cent. of urea. In the evening there was severe pain in his left loin and bloody urine.

On the sixteenth day his urine was partially suppressed: 12 ounces in twenty-four hours. The next day under benzoate of caffein and subcutaneous salt solution the amount went up to 30 ounces. He had attacks of colic of the renal type, after which I washed from his bladder long "worm-like" clots.

On the eighteenth day he passed 110 ounces of urine. In the afternoon he showed for the first time a little temperature (100.5°).

From this point there was a gradual failure, the quantity of urine steadily diminishing and the toxic symptoms increasing in spite of treatment. The urine continued bloody. By the twenty-first day the urine had dropped to 60 ounces; by the twenty-second to 40 ounces. On the twenty-third day this man died of renal insufficiency. There was no autopsy.

CASE II was seen in October, 1911. The aseptic period of this man's renal insufficiency was not actually observed by me, but it antedated my attendance by a very short time. This patient, aged sixty-seven, had nocturnal incontinence a number of years before. This continued for a time and then ceased. It had recurred, and had been especially troublesome during the summer of 1911. He had lost weight and strength considerably during this time, but had been without pain.

Ten days before I saw him he had had a severe gastric upset. He was advised by one physician, on the strength of finding albumin and a few casts, that he had Bright's disease. Another man found no evidence of Bright's disease (B.P. 150 mm. hg.), but did find a much distended bladder and an enlarged prostate. The surgeon to whom this last man sent this patient for confirmation of his diagnosis, drew by catheter 4 pts. of clear residual, with a specific gravity of 1010 and a slight trace of albumin. Following this the patient was catheterized at irregular intervals. His digestive trouble increased, and for a few days before I saw him he had had great difficulty in retaining food. The morning of the day I saw him a quart of bloody urine had been withdrawn. He had had some pain referred to his bladder.

When I saw this man he had a dry tongue and urinous breath. I withdrew 20 ounces of bloody, infected urine, having a specific gravity of 1011, urea 1.26 per cent, albumin 3 per mille. His general appearance, however, was so good that it was hard for me to believe that this man's condition was as critical as I knew it to be. He was sent into a hospital and regular catheterization begun. Forty hours after I saw him his bleeding had increased to the point where his bladder was filled with clots and a catheter was useless. I therefore did a suprapubic cystotomy as rapidly as possible under ether. In spite of saline infusion and stimulants, this patient lapsed into unconsciousness, had suppression of urine, and died about twenty-four hours later.

These two cases present several points in common. The first was in the aseptic stage when first seen; the second only recently infected. Neither one had suffered any pain until his bladder had become infected, presumably because their bladders were too atonic to resent mere overdistention. I think we should look with great suspicion on a prostatic who has a distended bladder and no pain. It indicates that his bladder is lacking in contractility, and that it will, and probably already has, allowed back pressure to take place. For the most part these painless cases will be in the aseptic stage. I have no explanation to offer as to why certain bladders distend easily and painlessly, while others do not.

In passing I would like to call attention to the nocturnal incontinence that these men presented, and say that in the absence of a definite cord lesion nocturnal incontinence in men practically always means an overdistended bladder. In instances where the urine is clear and there is no pain this symptom seems unfortunately to be often overlooked. One may say the same for the digestive symptoms, which are even more commonly seen than incontinence, and the true significance of which is so frequently misinterpreted.

The rapidity with which these men's urines became infected, after they were catheterized, is of interest. We are told that to infect a bladder by passing a catheter, under ordinary circumstances, shows either a great lack of care or of skill, and I quite agree to this. With an atonic bladder the condition is wholly different, in my opinion. The urine as a rule contains just enough albumin to make it an excellent culture medium.

It has been my experience that I have been unable to carry on catheterization for any length of time in cases of this sort without getting infection. I have used the strictest aseptic precautions such as wearing sterile gloves, a careful toilet of the glans, and sometimes have used a preliminary urethral irrigation, these in conjunction with the use of urinary antiseptics, but the result has always been the same. There are enough organisms in the urethra so that I believe we must assume that we are going to have an infection of the overdistended aseptic bladder if we catheterize. We should not, however, because of the certainty of infection let up in the least regarding our aseptic precautions, for the longer we can put off infection the better.

Once the bladder has become infected in these cases with atonic bladders, and therefore gaping ureters, infection of the kidneys is almost sure to follow. The severity of this infection of the kidneys, which will take the form of a pyelonephritis, is a matter that is most difficult to

calculate. It depends upon factors that we cannot determine: the general resistance of the patient, which is usually not very good; the virulence of the organism; the amount of change in the ureter and kidney pelvis; if this last is small, a slight diminution in the distension of the bladder may allow the kidney pelvis and ureter to contract and take up their function, which is undoubtedly a protection against ascending infection, as well as an important element in ridding the kidney of an infection that has already taken place.

The haematuria these patients showed is of interest to me. I believe it was renal in both instances. In the first patient it followed lumbar pain, and I washed from his bladder long clots that were unquestionably casts of his ureter. It is my belief that most of the haematurias that were formerly considered the result of emptying an overdistended bladder too quickly, the so-called bleedings "ex vacuo," are not of bladder origin, and are not due to diminished intravesical tension, but that they are of renal origin and caused by an ascending infection and the resulting congestion.

These aseptic cases with overdistended bladders and serious renal embarrassment, the result of back pressure, will often present relatively few urinary symptoms. There may be some frequency, or there may be some incontinence, but as a rule the urinary symptoms are not the ones that lead these patients to seek relief. The symptoms referred to digestion are perhaps the most prominent: lack of appetite, causeless nausea and vomiting, a coated or dry tongue and the bad taste that so often accompanies this. There may be a considerable loss of weight, and involuntary twitchings are sometimes present.

The blood pressure will not be high, except in cases where there is an arteriosclerotic element in the kidney. This I have seen a few times. There will be polyuria. The urine will be low in gravity and low in solids. Such symptoms should lead us to suspect an overdistended bladder that is causing renal embarrassment by back pressure, and I believe it is much wiser in such cases to estimate the amount of residual by palpation than by the casual introduction of a catheter.

The prognosis in these cases, which depends upon the renal efficiency, is a difficult matter to determine, much more difficult to determine than it is, for instance, in an interstitial nephritis or an ordinary renal suppuration. I do not believe that as yet we have any means of estimating it accurately. It is a question, not only of estimating the renal function at the time, but of making an allowance for the diminution of function that is going to result from the almost certain infection that will follow drainage, whether this be by regular catheterization, retention catheter or suprapubic cystotomy. It is impossible to estimate this further crippling of function with accuracy.

I have seen several patients with aseptic back pressure, due to an overdistended bladder, who survived prostatectomy but died some weeks or months later as a result of a progression of the renal infection that took place at the time of operation. In such of these cases as have come to autopsy there has been a marked dilatation of the ureter and kidney pelvis; they have been atonic to a degree where they were unable to rid themselves of the infection, which progressed steadily until the patient succumbed to renal insufficiency. In order to make an accurate prognosis we would have to determine the extent to which the suppuration would extend, a manifest impossibility.

In the treatment of these cases our object is two fold. We wish to get the relief that the removal of the back pressure brings about and to get it with as little infection as possible.

The treatment of the two reported cases was not successful, and I believe could have been improved upon. It would probably have been wiser to have opened the first man's bladder, either at the time I first saw him, or at the time he had gotten the benefit that came from relieving his back pressure, about the twelfth day, before the infection had involved his kidneys. In this way I should have made a more intelligent attempt at limiting his infection, in that I should have avoided the occasional backing up of septic urine that took place. This backing comes in most patients with atonic bladders whom one attempts to drain with an inlying catheter.

In the second case I should have spared the patient the shock of ether. This man had not had the benefit of the relief of his back pressure that would have come from constant drainage; he had, however, the sepsis that follows instrumentation in such cases, and it is doubtful if any plan would have succeeded with him.

While one sees patients of this sort who can bear a little ether and others who can bear some infection, we cannot be sure that any given patient can. I have come to feel that in patients of this sort we should do our utmost to spare the kidneys both the injury of ether and of infection. I believe this is best accomplished by a preliminary cystotomy under local cocaine anesthesia. This is not always an easy operation for either the patient or the operator, yet it gives the greatest assurance we can offer against infected urine in the bladder under pressure.

Within the past few months I have seen at least three case of this sort in which a preliminary opening of the bladder under cocaine had allowed a patient, with seriously embarrassed kidneys, apparently bordering on uremia, to regain his renal function to a degree that made successful operation for the removal of a urinary obstruction possible in two cases. The third, the patient of another man, had not come to operation the last I knew. An objection perhaps to this preliminary suprapubic drainage is

the fact that it practically commits us to suprapubic prostatectomy later.

I wish now to report briefly two infected cases with back pressure.

Case III. This patient, seen in April, 1911, was sixty-three years old. No venereal history. About four years before he first noticed difficulty in passing urine, but no frequency and no pain. For six months he had to urinate three or four times at night, and had had a little pain at the time of urination. He passed a little blood about a year before. His chief trouble was "indigestion," dizziness and loss of strength. No cardiac lesion could be found; his blood pressure was 130 mm. hg. His urine, which was passed in a poor stream, was turbid with a moderate sediment made up of pus cells and bacteria. Urine acid, specific gravity 1008, urea 1.64 per cent., a moderate trace of albumin. By abdomen a considerably distended bladder could be made out; by rectum a small fibrous prostate with a soft, full bladder, bulging down behind.

He was sent into a hospital. Twenty ounces of residual urine was found, and a retention catheter tied in. In four days, under forced fluids, the specific gravity had risen to 1016, the urea to 2.40 per cent. This in spite of the fact that he had had a flare-up of his pyelonephritis and his albumin had gone up from a moderate trace to 1 per mille, by Esbach. On the eighth day his time of appearance for phthalein had come down to ten minutes; on entrance it had been twenty-five minutes.

On the ninth day this patient had a suprapubic prostatectomy under ether and made a good recovery. When last seen, about six months after operation, this man's urine showed that his pyelonephritis still persisted, but he was having no subjective symptoms from it. His symptoms of renal insufficiency had disappeared.

Case IV. This man, seen in January, 1912, was sixty-three years old. Urinary symptoms began with frequency about seven years before. This has increased steadily, and for sometime he has had pain in his right loin. A month before grippe, since which time his frequency has been greater and his pain more severe. He has also had digestive distress and had lost about twenty pounds in weight. Makes very frequent attempts to pass urine at night and rarely accomplishes anything, but as soon as he goes to sleep his urine dribbles.

Rectal examination shows no increase in size of prostate, but bladder bulges down behind it. By abdomen bladder can be felt midway between pubes and umbilicus. Tenderness in right loin, but no mass. B.P. 126 mm. hg. Heart negative, pulse 96. A dry parrot-like tongue. Urine acid, specific gravity 1012, urea 1.39 per cent., a slight trace of albumin but no sugar. Sediment heavy and made up of pus and bacteria. Patient is very feeble and is apparently on the border of uremia.

An attempt was made to withdraw his residual gradually with a retention catheter, but patient would become confused at night and remove it. Pain appeared in his left loin as well as his right. Urine bloody, light in gravity and with an increased amount of albumin (3 per mille by Esbach). Pulse intermittent. Six days after admission suprapubic cystotomy under cocaine anesthesia. Six days after cystotomy urine 106 ounces, specific gravity 1009, urea 1.45 per cent. General condition improved. Eighteen days after suprapubic drainage an obstructing bar at bladder outlet was cut away under spinal anesthesia. Patient made a good recovery and at the time of leaving the hospital had no pain, no dribbing. His tongue was moist.

These patients present much less difficulty than those of the aseptic type. In the first place, an examination of the urine will show at once that they have a kidney involvement. This is indicated by the amount of albumin present rather than by the finding of casts. One seldom finds casts in these renal suppurations, though they are probably present. An amount of albumin that is as great as ½ per mille, I believe always means involvement of the kidneys, no matter how great the amount of pus, and one may reasonably suspect renal involvement with much less albumin, even when the urine is loaded with pus.

In patients of this type we have less fear of infecting a soil that is especially favorable. The infection has already taken place and the patient has developed a considerable immunity to it. Consequently all we need consider is the question of relief of the back pressure. Our tests for renal efficiency here are of considerable value, and we may fairly assume that the potential kidney power is greater than that indicated by these tests, for with the relief of the back pressure we shall get a considerable increase in renal efficiency. This was well shown in Case III, where catheter drainage worked well and the time of appearance of phthalein diminished from twenty-five minutes to ten minutes in eight days.

In the greater number of these cases the use of a retention catheter will be all that is necessary to relieve the back pressure and bring about improvement. In a few cases, however, as in Case IV, where drainage by catheter is not successful, suprapubic cystotomy under local anesthesia should be substituted.

In conclusion: I believe that the mortality in operations for the relief of prostatic obstruction depends largely on the condition of the kidneys; that urinary back pressure and the damage and embarrassment this inflicts on the kidneys is the commonest form of renal danger in prostatics. Its importance lies in the fact that a patient may be very near the uremic state without this being evident. Our functional tests do not give us absolutely definite information as to how near the uremic state a patient is. We get our most accurate idea of this from the symptoms of general toxemia that these patients show; they are referred to the digestive tract most often, less frequently to the nervous system.

What I term the "element of embarrassment" in these patients, the element that depends on back pressure alone, is capable of relief. This element that is capable of relief by proper preliminary treatment may be enough to determine the success or failure of operation.

Our endeavor in these patients should be to

relieve the back pressure without infecting the urinary tract or with the minimum of infection. In the aseptic cases this is best accomplished by a preliminary suprapubic cystotomy under local anesthesia; in the infected cases an inlying catheter is usually sufficient.

ARTIFICIAL PNEUMOTHORAX IN ADVANCED UNILATERAL CASES OF PULMONARY TUBERCULOSIS.

BY EDWARD O. OTIS, M.D., BOSTON.

NOT all cases of pulmonary tuberculosis, even if submitted to the open-air treatment at an early stage, become arrested, but steadily progress towards the advanced stage in spite of any and all treatment Other cases first apply for treatment only when the disease is far advanced, so that there is always a large number of such unfortunate cases, pathetically appealing to the physician for help, who knows all too well that he is powerless to render it. Occasionally, indeed, a far-advanced case does make an unexpected arrest, but generally it drags along, the disease slowly advancing, with now and then stationary intervals, until the patient finally succumbs; or else the disease continues progressively active and the patient makes a more rapid descent towards the final catastrophe. Such cases are the despair of the physician and the dupe of the charlatan into whose hands they often fall.

To these previously considered hopeless advanced cases artificial pneumothorax offers another chance of arrest, and the increasing number of reported successful cases by men of the highest authority, and extending over a considerable number of years, has fully attested its value and established this treatment upon the firm basis of successful experience.

In a recent visit to some of the various hospitals of Europe where artificial pneumothorax was being done, I was impressed with the favorable results obtained and the confidence in the operation manifested by the physicians who had had experience with it. Forlanini of Pavia, Italy, was the first in Europe to successfully demonstrate artificial pneumothorax, and he has been continously doing it in his clinic and private hospital. In the wards of the Pavia hospital I was shown a case, for example, practically arrested, all symptoms having disappeared, which, under any other form of treatment, would have undoubtedly succumbed, the condition being that of an advanced case. Other clinics, especially those of Brauer and Deneke in Hamburg, showed similar results, Bauer being one of the foremost exponents of the treatment in Europe.

There is already an extensive literature upon the subject, notably the volume of reported cases by Bauer and Spengler recently published.

At the late International Congress on Tuberculosis in Rome artificial pneumothorax was accorded very considerable attention, and an International Pneumothorax Association was formed under the direction of Prof. Saugmann of Denmark.

Of course, only a certain proportion of cases are successful, but the treatment gives another chance to an otherwise doomed person. H. Brams of Hanover, Germany, in a communication presented at the Congress in Rome, reported eighty cases in which there was no hope from any other method of treatment, forty-nine of which or 61.2 per cent. being apparently cured by means of artificial pneumothorax. The procedure is a simple one, so far as any operative skill is concerned, but it requires careful manipulation in order to get in between the two layers of the pleura. If firm pleural adhesions exist the lung cannot obviously be compressed, but it is surprising how infrequently this happens, even in very extensive disease. Not only in advanced tuberculosis but also in abscess of the lung, bronchiectasis, and dangerous hemoptysis is the operation applicable.

In performing the operation as I saw it done in Europe, a very careful determination of the exact condition of the diseased lung is made, and in every case the x-ray is used, particularly to ascertain whether or not pleural adhesions exist. Of course it is evident that the other lung must, for the most part, be able to perform its function; not necessarily that its integrity should be complete, for there may be and often is a small amount of disease at the apex. Curiously and fortunately the artificial pneumothorax often exercises a beneficial influence upon the diseased apex of the other lung, if it exists, and that, also, becomes arrested, the cause of which has been variously explained.

The conditions, then, which warrant a recourse to artificial pneumothorax are an advanced or advancing case of pulmonary tuberculosis which does not yield to the ordinary treatment, the disease being principally unilateral. After a careful physical and x-ray examination, the spot which appears to be free from adhesions is selected, and, by careful manipulation, a needle similar to an aspirating needle is inserted between the two layers of the pleura and through it nitrogen gas is slowly injected under slight pressure. Only a certain amount of the gas is allowed to flow in at the first attempt, depending upon individual conditions, and the procedure is repeated, if all goes well, at frequent intervals until the lung is tightly compressed, as shown by the physical examination and x-ray picture. When this has been accomplished, the subsequent injections are at longer intervals, sufficient to maintain the compression.

Many forms of apparatus have been devised for this purpose; almost every physician who was doing the operation seemed to have one of

his own invention. The essential constituents, however, are the same in all, and consist of a graduated bottle or glass jar containing the gas, some method of pressure, either by means of a second bottle containing water, or a rubber bulb, and a manometer to indicate when the needle is in the pleural cavity, and also the degree of pressure, both positive and negative. There are also many forms of needle, the one most commonly employed being bevelled at a less acute angle at the point than is the ordinary aspirating needle, and having the opening at the side rather than at the end. The majority of opertors use the simple puncture, as in ordinary aspiration. Bauer and his disciples, however, first make an incision down to the pleura and then insert a blunt needle or trocar into the pleura, considering this a safer method. The principal danger to be feared is gas embolism, the needle piercing a vessel in the lung, and the gas, in consequence, entering the circulation. A few deaths have occurred from this accident; but with care, and never allowing the gas to enter until the oscillations of the manometer indicate that the needle is in the pleural cavity, the operation is comparatively safe.

Prof. Deneke of Hamburg, in order to minimize the risk of gas embolism, has devised a very ingenious apparatus by which either oxygen or nitrogen gas can be used at pleasure. At the first injection he uses oxygen gas, which is readily absorbable, until he is sure that he is safely within the pleural cavity. He then changes to the less absorbable nitrogen gas.

When, in the course of an advancing pulmonary tuberculosis, an accidental pneumothorax occurs, one is occasionally struck with the quite sudden amelioration of the symptoms, which rarely but sometimes occurs,—the cough, expectoration, night sweats and fever all subside; and just the same thing happens with artificial pneumothorax if the case is a successful one. If the improvement continues, the patient finally becomes an ambulatory one, and walks to the clinic for his nitrogen gas injection when necessary and then returns to his home, or even to his work.

Artificial pneumothorax is now being done in this country, and the thanks of the profession are due to Dr. J. H. Pratt for first introducing it in this community in 1909, and to Drs. Robinson, Floyd and Balboni for further popularizing the operation. No greater advance, I believe, has been made in later years in the treatment of tuberculosis than in this operation of artificial pneumothorax for otherwise doomed cases. From the private communication regarding a well-known member of our own profession who had taken to his bed to die of advanced pulmonary tuberculosis, I quote the following: "Did you know that A. has had it (artificial pneumothorax) done on himself and feels like a different man. He has been up and about the spring and summer and even gone fishing."

Clinical Department.

ROUTINE MEDICAL WORK IN A SANATORIUM.

BY LAWRASON BROWN, M.D., HARRY LEE BARNES, M.D., AND VICTOR F. CULLEN, M.D.*

THE routine medical work that can be effectually performed in any institution depends upon the patients and the medical men connected with the institution. The number, the condition and the class of patients directly affects the amount of routine work possible, and the number, the health and the enthusiasm of the physicians is also closely connected with the amount of work that can be done. Many institutions are manned with men who are attempting to work while regaining their lost health. To expect such men to do the work of vigorous, enthusiastic workers is foolish, for if they do they fail to regain health. Inasmuch as many institutions are forced to accept such workers—for many of us have been in that class—it seems advisable to adopt some standard minimum for the routine medical work in sanatoriums. Even for men in robust health the routine work may be so exacting that all energy, all enthusiasm, thought and investigation are killed. So for these men, too, the proper regulation of routine work is essential.

When a man is expected to be superintendent and resident medical officer of a sanatorium with twenty-five to thirty beds, which are kept constantly filled, often with some patients in far-advanced stages who demand considerable medical attention, it seems unwise for him to attempt to take lengthy histories and even in some instances we would strongly urge him to use cards on which the salient features of the disease are printed but where also is left some space for an individual note. It is better even to use a folded sheet with ample room than to omit what in future may prove of much value. The question of the "history" has been already discussed and we will only state that we believe that the essentials may be so reduced that they can be noted when dealing with a patient of fair intelligence in ten or fifteen minutes. A very important point in this connection is to retake the history, or as we term it, "check it up" at the end of two months, noting that this has been done.

The physical examination should include full notes on the lungs and upper respiratory passages and briefer ones on the condition of the abdomen, the glands, the skin, the heart and possibly the blood. The condition of the lungs should be charted on admission and on discharge. Under inspection the symmetry of the shoulders, the clavicles, the pectorals, the intercostal spaces and when used together with palpation, the movements of the side as a whole as

* Committee of the American Sanatorium Association appointed to report upon the Routine Medical Work in a Sanatorium.

well as the upper and lower parts, the condition of the chest muscles whether relaxed or contracted and the vocal fremitus. On percussion any departure from normal should be noted, but in well marked lesions it seems unnecessary to note Kroenig's tone-planes or the extent of movement of the bases. On auscultation the breathing, relative and absolute, the vocal resonance after the whispered and spoken voice, the presence or absence of friction sounds, rales or rhonchi on quiet breathing and after coughing, should be recorded.

For many of us it is wise to summarize our examination and to infer what physical changes we believe have occurred in the lungs. The condition on admission should be written down at the end of the first week and not at the time of departure of the patient.

In regard to the re-examination of the patient, it seems wise to us that when afebrile, ambulant and doing well he should be re-examined once every two months. Febrile patients should be gone over lightly and made to cough little, if at all, every two weeks to prevent the occurrence of effusion, silent pneumothorax, etc., without detection.

The sputum should be examined monthly and the urine on admission, at the end of every three months and at discharge. An intelligent patient can be trained to do much of this work as any pathological finding can always be checked.

It is important for the medical man to see casually each patient daily and at intervals of one to two weeks to bring the patient and his temperature, pulse and weight records together for a little talk. The closer the bond between patient and physician the better the results, but any intimacy is disastrous and should be avoided. It is wise to have a reliable person to check occasionally the temperatures taken by the patient.

We believe the routine here outlined will give most men an opportunity for reading and thinking, while the "grind" of the routine will not consume so much energy that they have none left for honest, original work which, be it ever so simple, accomplishing much or little, reacts upon the men attempting it in such a way that an indefinable something, "geist," if you wish, goes out of them and pervades the work of the whole institution, placing it upon a distinctly higher plane.

The larger institutions, where more men are on the staff, can elaborate this routine in many ways and still allow ample time for thought and work. We do not wish to be misunderstood for we have only suggested a minimum below which the routine should not fall. We believe that when an institution exceeds thirty to forty patients two medical men should be employed and the ratio should never fall below one to fifty, which we believe is really too large a number for each man.

Medical Progress.

RECENT PROGRESS IN NEUROLOGY.

BY PHILIP COOMBS KNAPP, A.M., M.D., BOSTON.

SYPHILIS OF THE NERVOUS SYSTEM.

At the meeting of the German Neurological Society[1] at Frankfort last October one of the chief subjects of discussion was syphilis of the nervous system. Nonne opened the discussion with an elaborate paper on the value and significance of the modern treatment of syphilis in dealing with nervous diseases. Increased lymphocytosis in the cerebro-spinal fluid and the globulin reaction in the fluid may occur in both syphilitic and parasyphilitic nervous diseases as the expression of a meningitis or possibly of a cerebro-spinal periarteritis. Lymphocytosis may occur in those who have had syphilis but are now healthy, and it is possible that the nervous system is affected only in those syphilitics who show lymphocytosis. The globulin reaction shows that the nervous system is already affected. These two conditions may disappear in true syphilis under treatment, if the clinical symptoms disappear. The Wassermann reaction in the blood is regularly positive in florid syphilis, but it may become negative after intensive treatment after the symptoms disappear, although many cases remain positive for years after long continued intensive treatment, even when all symptoms have disappeared and the autopsy shows no microscopic signs of syphilis. The reaction may at times be positive in leprosy, framboesia, malaria and scarlet fever. Persons with a positive reaction may beget healthy children with a negative reaction. The reaction is sometimes negative in tabes and cerebro-spinal syphilis. While a positive reaction may be regarded as a symptom of syphilis a negative reaction does not necessarily exclude syphilis. It is probable that the disappearance of a positive Wassermann reaction, of increased lymphocytosis and of the globulin reaction may be of importance as showing the effect of treatment. Many cases of cerebral, spinal or cerebro-spinal syphilis are on record as having been completely and permanently cured by mercury and iodide, but in other cases even persistent treatment by massive doses has been unsuccessful. A persistent treatment, with intermissions, should be kept up for a long time. In some cases of cerebral gumma surgical interference is necessary. The treatment of tabes and paresis by mercury, although not curative, is often beneficial, if used with care, and is rarely attended with injurious results; but it is not advisable to continue the mercurial until the Wassermann reaction becomes negative. The question of lecithin metabolism is complex and still unsettled, but there is very possibly a lack of lecithin in the

[1] Deutsche Zeitschrift für Nervenheilkunde, xliii, 166. February, 1912.

central nervous system as a result of the syphilitic processes, so that it seems justifiable to give lecithin early in the disease to counteract this defect.

Although Ehrlich originally advised against the use of salvarsan in degenerative conditions of the nervous system, Nonne calls attention to the fact that it is not always possible to differentiate between a specific meningitis and a parasyphilitic affection. Furthermore, salvarsan may perhaps act as an excitant in the formation of anti-bodies as well as against the spirochete itself. Furthermore, the danger of giving salvarsan, even in cases of aortitis or chronic alcoholism are now lessened, although there are still possibilities of its causing acute swelling of the brain or even hemorrhagic encephalitis. Out of 191 intravenous injections 128 showed no reaction. In 350 cases he met with severe collapse in three. Otherwise the unfavorable symptoms were slight. Of these cases 32 were paresis and 55 tabes. In regard to the question whether thorough anti-syphilitic treatment has any prophylactic effect against tabes or paresis, Nonne states that the Wassermann reaction in the blood is often negative in tabes, even when anti-syphilitic treatment has been neglected, while it is usually positive in paresis, even when such treatment has been thorough. Moreover, many cases develop syphilitic or parasyphilitic affections after the most energetic treatment. Nevertheless, he maintains that primary and secondary syphilis should be thoroughly and energetically treated.

In regard to the question whether the use of salvarsan gives a better chance of a permanent cure of syphilis, opinions vary, but, after a review of recent reports, Nonne has the impression that salvarsan has a stronger influence on the course of secondary syphilis than mercury. Statistics vary greatly as to the effect of salvarsan on the Wassermann reaction. Some have found that the reaction becomes negative in 80 to 90 per cent. of the cases, others in only a very small number, but salvarsan has certainly less influence on the Wassermann reaction than on the other symptoms of syphilis. Salvarsan apparently has also a greater power to abort syphilis and to prevent recurrences than mercury. In regard to the prophylactic influence of salvarsan on the nervous system, it must be admitted that in a considerable number of cases nervous symptoms,—disturbances of memory, depression, vertigo, paralysis of cranial nerves, —have developed after its use. These symptoms, however, have often been noted in secondary syphilis and may be due to the syphilis and not to salvarsan, especially as they sometimes yield to anti-syphilitic treatment, and they do not occur in non-syphilitic diseases which have been treated with salvarsan. They occur also only in the early stage of secondary syphilis, and sometimes do not develop until several weeks after the salvarsan has been given. Consequently Nonne is disposed to regard such symptoms as syphilitic. It may be that early examination of the cerebro-spinal fluid will show what cases are likely to develop nervous symptoms and will therefore, guide us in their prophylaxis.

In some cases, but unfortunately the minority, salvarsan exerts a much more rapid and efficient action upon syphilis of the nervous system than mercury and iodide, and even may be successful where these have failed. In the majority of cases it causes improvement, but sometimes it seems to favor the development of nervous symptoms or to make them worse. Old cases of meningo-myelitis, cases with secondary degeneration, arteriitis, secondary softening, or old local meningitis which has caused the formation of cicatricial tissue, and the larger gummata are not influenced by salvarsan. Out of 40 cases of cerebro-spinal syphilis, those most favorably affected were cases of meningo-encephalitis; of eight of these five were cured and three improved. Five out of seven cases of arteriitis showed improvement, and three out of five of meningo-myelitis. The Wassermann reaction, however, did not always show improvement to the same degree as the clinical symptoms. In some cases disease of the retinal vessels has been seen by the ophthalmoscope to improve under salvarsan. In tabes salvarsan seems to have a tonic effect, and to exert a favorable influence on pains, crises, ataxia, etc., but it has no effect on the objective cardinal symptoms, sensory disturbances, areflexia, hypotonus, etc. If the optic nerve be intact it does not seem to affect it, and many men have given it without harm in cases of beginning optic atrophy, but sometimes it seems to lessen the vision of the atrophied eye. Salvarsan seems to be indicated in tabes in the same cases as mercury, cases which have not received thorough specific treatment since the onset of the spinal disease, cases where there is an early cachexia, and cases which, under the intermittent treatment with mercury and iodide, have shown a benign course. It is not contra-indicated in optic atrophy, but small doses should be given. It is contra-indicated when the trouble is located in vital centres, as the upper part of the cord and the medulla. Treatment by salvarsan is also permissible in incipient paresis, and in cases where mercury has acted favorably, but is no longer tolerated. In advanced cases it has no effect. Nonne advises the use of salvarsan in small and repeated doses, combined with treatment by mercury and iodide. His conclusions are that salvarsan is often of great efficiency in syphilis of the nervous system, but that the sterilisatio magna is rarely attained. Intensive treatment of primary and secondary syphilis with medium or large doses of salvarsan may bring danger for the nervous system. Treatment of tabes and paresis by the doses now in use is not injurious. It is not yet proved that salvarsan is superior to mercury and iodide in syphilogenous diseases of the ner-

vous system, yet it is, when rightly used, a powerful and suitable aid to the neurologist as an antisyphilitic.

Benario confirmed Nonne's opinion that the nervous symptoms were more probably due to syphilis itself than to salvarsan. In 210 cases of nervous syphilis nearly two-thirds were males, but before the age of twenty the proportion was more than reversed. The abuse of alcohol and tobacco was of considerable importance among the exciting causes. Bakers and cooks seemed especially subject to nervous syphilis. The acoustic nerve was often affected. Extrogenital and especially cephalic chancres seemed to be followed much more frequently by nervous symptoms; 11 cases (5.9 per cent.) developed in the primary stage, 34 (18.4 per cent.) in the combined primary secondary stage, and 140 (75.7 per cent.) in the secondary stage; 60 per cent. of the cases showed a pronounced eruption. Most of them had been insufficiently treated. He compares 194 cases treated by salvarsan with 122 treated by mercury and finds that the different cranial nerves were affected in almost exactly the same ratio in the two series, and that, therefore, the nerve affection is much more probably syphilitic than toxic. Benario also shows that increased lymphocytosis may be present without clinical symptoms or may persist after all clinical symptoms have disappeared, but he raises the question whether, if treatment be kept up until this lymphocytosis disappears, it may not be of value in preventing parasyphilitic affections. His statistics are of interest, too, in confirming the opinions recently advanced by Mott and others that nervous syphilis is often an early affair and not, as was formerly held, rather a manifestation of the tertiary stage. The question of involvement of the acoustic nerve, too, is one that is often neglected, but Benario's statistics show that the acoustic is affected almost as often as the optic and oculo-motor nerves combined, and that the facial nerve also is affected very frequently.

Oppenheim opened the discussion on Nonne's paper. He reported 22 cases of cerebro-spinal syphilis in which salvarsan had been used. In some cases there was a striking benefit, but in the majority the treatment had little effect. Out of 44 cases of tabes and 21 of paresis, there was some improvement in a few cases of tabes, but as a rule no benefit was obtained. Seven cases showed symptoms of combined sclerosis or of poliomyelitis, only one of which showed improvement under salvarsan. In eight other cases nervous symptoms developed or grew worse after the use of salvarsan. He held that salvarsan may have a curative effect in true syphilitic disease of the nervous system, but it apparently has no greater action than other remedies, except that it may act by a single dose, but, like iodide and mercury, it sometimes fails. In some cases it has a deleterious influence. Whether it is more uniformly and persistently successful than iodide and mercury must be determined later. In tabes and paresis it is of very little benefit. The disease is usually uninfluenced, and sometimes its action is harmful. If the diagnosis be sure, salvarsan is not indicated. In other affections, so long as there is a possibility that the process is purely specific, we may try salvarsan. Under the influence of salvarsan constitutional syphilis may give rise to severe symptoms in the central nervous system, but it is uncertain whether these symptoms are toxic or syphilitic. Salvarsan in large doses, however, may cause arsenical polyneuritis. It is, on the whole, doubtful whether salvarsan is of much additional benefit in the treatment of nervous diseases. It is now fairly accepted that tabes and paresis are sequelae of syphilis, but tabes is due pathologically to a process quite different from gummatous affections, and it is not always wise to treat tabes by mercury or to give mercurial treatment simply because the Wassermann reaction is positive.

Ehrlich argued that the nervous symptoms and other bad effects of salvarsan were due to imperfect technic; that freshly distilled water should be used, and that salvarsan itself had no toxic action unless mixed with living or dead bacteria. He referred to Klingmüller's statistics, in only two of 923 cases where nervous symptoms developed. In regard to the use of salvarsan in nervous diseases he pointed out that in most cases of syphilitic nervous disease we have to do with late forms, which are much less amenable to any treatment. In many cases degenerative processes have developed, which are incapable of repair. Certain anatomical changes, when once they occur, lead to progressive injury, even when the cause is removed. We may sterilize the organism, but the disease progresses. In certain parts of the nervous system, which have to do with vital processes, Herxheimer's reaction, harmless in the skin and mucous membranes, may give rise to serious consequences. Metasyphilitic diseases often occur in sick persons of low resistive power, who are more susceptible to arsenic. It is, therefore, clear that the treatment of syphilitic nervous disease by salvarsan is especially difficult and demands special precautions. Salvarsan should be used in smaller and repeated doses, and be combined with mercury, and above all controlled by repeated tests of the Wassermann reaction.

Treupel had found much benefit from salvarsan in syphilis of the central nervous system and a distinct relief from the pains and ataxia in tabes, but there was a marked exacerbation of pain for 24 to 36 hours after salvarsan had been given, which was so constant that he termed it a neuro-reaction. As this reaction ceased the tabetic pain began to be relieved. In paresis he had obtained improvement in the speech and handwriting, and a gain in flesh and general well being.

Schuster believed that an energetic local and

general treatment of primary and secondary syphilis should be carried out as a preventive of nervous syphilis, his statistics showing that a large number of cases of nervous syphilis had been insufficiently treated. Mercury should be given by inunction or injection as soon as possible after the primary infection and continued for six or eight weeks, with the addition of several doses of salvarsan. A chronic intermittent mercurial treatment should be given every three months through four or five years, uninfluenced by any benign clinical course or a negative Wassermann reaction. The presence or absence of lesions in the skin or mucous membrane has no prognostic value as regards the development of nervous syphilis. All cases of nervous syphilis, including not too far advanced parasyphilitic disorders, should receive a chronic intermittent treatment with mercury and iodide and every means employed in the way of strengthening and guarding the patient.

Schwarz accepts Nageotte's theory that tabes is due to a syphilitic meningitis, involving the posterior roots, and argues that, as salvarsan diminishes the lymphocytosis, it must also have an effect on the meningitis. His own investigations show that pleocytosis is a constant symptom and that the Wassermann reaction is always positive in untreated cases, but it may be negative in the blood if specific treatment has been given. It can then be found in the cerebro-spinal fluid or by the Nonne-Hauptmann method. Under treatment all the reactions, globulin, Wassermann and pleocytosis, may disappear. Cases of syphilis improve rapidly, but often should not be treated as ambulatory cases, but should be spared all exertion. If any new nervous symptoms develop he increases the salvarsan, and has found benefit, believing, as he does, that the symptoms are due to syphilis and not to salvarsan.

Finger stated that immediately after giving salvarsan certain symptoms may develop—chills, fever, malaise, prostration, headache, vertigo, spots before the eyes, nausea, vomiting, colic, diarrhea, jaundice, loss of appetite, tachycardia or bradycardia, cardiac distress, dyspnea, restlessness, anxiety, tremor, cramp, transitory paralysis, dry throat, vesical disturbances, albumin and casts, sweating, conjunctivitis, salivation with a salty taste, urticaria, erythema, zoster and transitory melanosis. These symptoms may also arise when salvarsan is given to non-syphilitic patients, and are due, he believes, to arsenical poisoning. At the same time Herxheimer's reaction, reddening and slight edema in the syphilitic eruptions, may be noted. There is a danger that salvarsan may excite this reaction in syphilitic tissue, thus causing nervous symptoms, and these symptoms usually develop six or eight weeks after salvarsan has been given. The danger is greater from salvarsan than from mercury, although it sometimes occurs with mercury. Salvarsan may also excite serious reaction in old tubercular foci. He considers that salvarsan, while acting favorably on cutaneous and mucous lesions, may act unfavorably on the syphilis itself by causing disease of the nervous system.

Förster argued in favor of injections of calomel as the most efficient method of giving mercury. Under its use he had seen not only a complete disappearance of the clinical symptoms but also of the pleocytosis, the globulin and the Wassermann positive reactions in the blood and cerebro-spinal fluid. The globulin reaction he regarded as the most sensitive of the four. Salvarsan had given no better results than calomel. Calomel had also given very good results in tabes. From 1896 to 1902 he had not given specific treatment to tabetic patients; since 1903 he had done so, and his success had been much greater,—39 out of 40 cases of tabetic pain had been relieved, in 5 cases paresthesiae had improved, in 15 cases vesical symptoms were alleviated, in 8 cases the knee-jerk returned, in 12 the pupils reacted again, although usually only slightly, and in 23 cases ataxia improved. In the crises calomel usually was harmful. The dose is from 1-6 to 1-2 a grain. The benefit is not permanent, but a renewal of the treatment may again give relief. Salvarsan was much less successful. In paresis, on the other hand, neither calomel nor salvarsan seemed to do any good.

Mattauschek held it to be the duty of the physician to give long-continued intermittent treatment to every syphilitic, even when manifest syphilitic symptoms were absent. The neglect of such treatment and the over-estimation of an eventual negative Wassermann reaction in the blood is the chief cause of many severe cases of nervous syphilis. He and Pilez had studied over 4000 cases of syphilis since 1880, and he believed that an intensive treatment of primary and secondary syphilis had a favorable effect in regard to future involvement of the nervous system. Those individuals are in the most danger who have had few clinical symptoms and have had only slight treatment. It is true that some cases of latent syphilis may develop a positive Wassermann reaction or symptoms of nervous disease after salvarsan or any antisyphilitic treatment, but this danger is less than that of leaving them untreated. The milder forms of tabes and paresis observed in recent years are perhaps the effect of more thorough treatment. He regards the use of salvarsan in syphilis of the nervous system as not only justified but actually indicated, especially when combined with mercury and iodide.

Pilez found that 4.69 per cent. of the syphilitic cases that came under his observation since 1880 had developed paresis. Many of those had had no attacks of nervous syphilis before in spite of insufficient treatment, while others had had nervous syphilis several times in spite of energetic treatment.

Kren had found in Riehl's clinic in Vienna,

under precisely the same conditions as in Finger's clinic, and in the same hospital, that there were no such injurious effects from salvarsan as Finger had found. Slight nervous symptoms, such as vertigo, tinnitus, toothache, headache and spots before the eyes, were not uncommon in the first forty-eight hours, but in 435 cases only nine showed any serious nervous symptoms. All these showed affection of the acoustic nerve, two of the facial and one of the trigeminal. Out of seven of these that remained under observation only one showed permanent deafness in one ear. Out of the few cases treated by mercury alone one showed deafness in one ear, and one optic neuritis. All these cases of nervous disturbance developing under treatment were in the secondary stage.

Saenger called attention again to the fact that nervous symptoms may and often do develop in the early secondary stage of syphilis, changes in the eyes having been found by Wilbrand in 45 out of 200 cases. Salvarsan relieved tabetic pains, but sometimes mercury gave better results in obstinate cerebro-spinal syphilis. In but few cases did nervous symptoms follow the use of salvarsan.

This discussion at Frankfort is one of extreme value, both from the number of men who took part in it and the wealth of clinical material from which the data were drawn. It emphasizes the frequency of nervous manifestations in the early secondary stage of syphilis, which is so often overlooked, and, still more, the value of examination of the cerebro-spinal fluid and of the four reactions in diagnosis, which is too often disregarded in this country. In the way of treatment there has been a general agreement on the value of mercury and the influence of chronic intermittent treatment for a long period. Salvarsan is a most valuable remedy, not an absolute cure, and not by any means an absolute agent in the sterilisatio magna, as was once hoped. It is not without danger, but it is doubtful if it actually excites nervous disease. It is probably helpful even in parasyphilitic affections, but it should be given in moderate doses (0.4 grm.), best intravenously, and should be followed by energetic treatment by mercury and iodide.

Reports of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

THIRTY-SEVENTH ANNUAL MEETING HELD AT BALTIMORE, MARYLAND, MAY 28, 29 AND 30, 1912.

THE PRESIDENT, DR. HOWARD A. KELLY, OF BALTIMORE, IN THE CHAIR.

The Society met in the Assembly Hall of the Medical and Chirurgical Faculty Building, and after an address of welcome by Dr. William E. Moseley, of Baltimore, which was responded to by Dr. Brooks H. Wells, of New York, the reading of papers was begun.

MENSTRUATION WITHOUT OVARIES.

DR. PALMER FINDLEY, of Omaha, Nebraska, reported a case in which both ovaries had been removed and the menstrual periods proceeded to recur at regular twenty-eight day periods for one year and a half, at which time he opened the abdominal cavity and resected an adherent omentum from the fundus of the uterus and broke up numerous pelvic adhesions. He was then unable to find any trace of ovarian tissue. Seven months had intervened since this operation, and the patient continued to menstruate at regular intervals of twenty-eight days and in the usual amount.

The findings in this case were almost identical with those in the case reported by Dr. George Gellhorn in 1907. The difference in the two cases was that the menstrual periods ceased to recur after Dr. Gellhorn excised the adherent omentum; while in the author's case the menstrual periods persisted. Gellhorn believed that the ovaries were not essential to menstruation and emphasized the important factor of added blood supply to adhesions to the uterus and the cyclic influence in determining the persistence of menstruation after the removal of both anatomical ovaries.

DISCUSSION.

DR. J. CLARENCE WEBSTER, of Chicago, thought that all had had the experience of hemorrhage occurring after the removal of the ovaries; that they had even had the experience of hemorrhage occurring from the cervix after the removal of the body of the uterus. He believed that a considerable percentage of these cases in which the hemorrhage was irregular might be explained either by the vascular degenerations in the uterine or ovarian arteries or in both, or in varicose veins of the broad ligaments. He could only recall one case in his experience where a regular flow suggestive of menstruation occurred after castration. He did not believe that Gellhorn's suggestion of adhesion was explanatory in such cases. He thought the retention after the operation either of portions of the main ovary of the stump, or what was more likely, where the good surgery was carried out, the existence of small portions (perhaps not even microscopic) in the broad ligaments.

DR. HENRY T. BYFORD of Chicago, emphasized the importance of the testimony of the patients. He recalled a patient in whom he removed the uterus and ovaries, and the woman said she continued to menstruate, but upon careful examination he found it was not exactly every month that this discharge began. The woman would have a little discharge between times. He told her to lie down a good deal, and if the discharge continued she was to return to see him. She would have a discharge of blood at one time at the end of three and a half weeks, at another time at the end of four weeks, and she was told to pay little or no attention to the little flow between times. There were a great many cases that were not menstrual in type, that is, they had not the menstrual periodicity.

With regard to adhesions, he found in nearly all of his cases there were adhesions. He thought these adhesions could produce a discharge of blood. All had had cases of adhesions in which the chief symptom was hemorrhage. There was nothing more established in his mind than that adhesions

interfered with the circulation by increasing it or damming it up, thus producing a bloody flow from the uterus, but this was not strictly menstruation.

Dr. J. M. Baldy, of Philadelphia, said he would like to emphasize not only the statement of the patient, but the statement of the doctor as to what was menstruation. The statement of the patient as regards menstruation was unreliable. He called attention to the statement, for instance of a notable New York surgeon who transplanted ovarian tissue and called the discharge that followed menstruation. It was a mere show of blood which disappeared in a short time. It was not menstruation at all in the strict sense in which menstruation was recognized. When these patients told the gynecologist how long they menstruated or how long they had stopped menstruating, it was found they all stopped for an unlimited length of time. He had never known a case to go more than a year and a half at the outside; in a few cases the patients might have gone longer than that. They were not cases in which there were adhesions, and there was no considerable portion of ovarian tissue left to account for the continued menstruation, if it were a real menstruation in the individual case.

Dr. Frank T. Andrews, of Chicago, said that four girls were referred to him by a physician from Wichita, Kansas, who had operated on one girl after marriage for a large ovarian tumor, he removing her ovaries. Another girl after some years of treatment he had likewise operated upon and removed her ovaries, and she had a normal change of life, with a normal result in that case, namely, stoppage of the flow. Then the family moved to Chicago and here were two girls suffering so severely with dysmenorrhea that, after caring for them and striving to avoid operation for several years, after having the best advice he could get from his gynecological and neurological friends, he decided to operate on one of them. Finally he did so and she made a normal recovery. The first one operated on improved very much for about nine months, but she kept on flowing apparently normally. The operation consisted in removing one ovary, leaving one ovary, and removing both tubes. After the dysmenorrhea returned, upon examination he found she had developed a year and a half after the first operation an ovarian tumor in the remaining ovary. He operated and removed that, and in carefully looking over the field he discovered there was a little stump he had not taken out on one side for some reason. He had not cut in and taken the whole tube out from the cornu of the uterus. So he removed that. The other one was thoroughly removed. He removed the tumor and she continued to menstruate. About three or four years later he removed the bulk of the uterus, leaving the cervix. The woman still continued to menstruate, and for somewhere in the neighborhood of four years, from that time until now, this woman went through exactly the same nervous disturbances every month that she used to go through while menstruating, but she had ceased to flow.

Dr. Edward P. Davis, of Philadelphia, pointed out that recent studies to settle the vexed question of the time of labor threw light upon the subject under discussion. It was found that the physiological life of woman consisted in periods of accumulation of blood terminating in increased pulse tension and in hemorrhage; that this condition was independent of the presence of genital organs, that is, the genital organs might be removed and this established physiological habit of woman still continued. In some cases the persistence of this discharge and increased pulse tension was the result of disorder of the ductless glands, and some cases were improved by the administration of thyroid extract or pituitin or adrenalin. He thought this would explain some of the cases in the discussion where the absence of genital organs by operation had been followed by continued hemorrhage. The hemorrhage would occur from a physiological standpoint in any organ lined by mucous surface and richly supplied by subjacent capillaries, and in the absence of uterine mucosa hemorrhage was seen that was familiar also from the nasal cavity, sometimes from the gastric mucosa, and sometimes from the intestine, and rarely in the hemorrhages underneath the skin which had, when complicated by hysteria, given rise to those interesting cases of alleged bloody sweat and supernatural manifestations.

Dr. Clement Cleveland, of New York City, said he was reminded of a case he had some years ago where it was reported that both ovaries had been removed, and still the woman menstruated. It was a case in the Woman's Hospital in New York, and his confrere, who had done the operation, had died in the meantime. The patient, therefore, came into his service, and he looked up the history. There was a miscarriage at the fourth month. The history showed that both ovaries had been entirely removed. He had very little faith in the functional activity of supernumerary ovaries, and he came to the conclusion that in most cases the discharge was due to a small portion of the ovary having been left behind. He was very positive it was in his case.

Dr. Seth C. Gordon, of Portland, Maine, said he had reported two cases where pregnancy took place after as careful a removal of both ovaries as possible. One of these cases occurred in the practice of Dr. Chadwick, of Boston, who had assured him that he was certain he removed every particle of the ovary, and Dr. Gordon felt just as certain that he did likewise in his case, and yet both women bore one child each about a year and a half after the operation. He removed the ovaries of a young woman and she still continued to menstruate. Two years afterwards he removed the uterus supravaginaily and she still continued to menstruate. Two years later he removed the cervix and that stopped the menstruation, but menstruation was absolutely regular during the time that the cervix remained. So he believed that a physiological congestion actually occurred and that accounted for the regular menstrual period.

CHRONIC CYSTITIS OF THE TRIGONE AND THE VESICAL NECK.

Dr. Edgar Garceau, of Boston, said that this condition was frequently incorrectly diagnosed as irritable bladder, or a neurosis of the bladder, etc. He referred to the significance of vesical psychoses. Neurasthenia was the consequence of obscure cystitis and not the cause of vesical symptoms. A clear urine with a red trigone might be symptomatic of severe cystitis. The absence of pus and blood did not exclude subepithelial cystitis. The cystoscopic appearances were referred to. There were two varieties of cystitis: One in which there was nothing to be seen but a red trigone, and this he called subepithelial cystitis, and the other in which there were marked pathological changes. Chronic cystitis

of the trigone and vesical neck was always ushered in by frequent micturition. The writer was sure from long observation of these cases that the disease often started as a simple hyperemia of the trigone of the bladder, which had taken its origin in consequence of hyperemia of the pelvis which was due to some pelvic disease, and that the first symptoms were those usually experienced with vesical hyperemia. Perhaps the most serious feature of the disease was its long duration which entailed a severe degree of neurasthenia and reduced the patient to a pitiable state. In the cases in which the disease was submucous in character without superficial lesions, local treatment was not only of no avail, but harmful. A vaginal cystotomy must be performed and the top layer of the trigone dissected or curretted off through the diseased tissue.

DISCUSSION.

DR. HENRY T. BYFORD, of Chicago, stated that the very fact that local treatment did not help would indicate it was medical treatment that was needed. He had had cases that he had treated medically which came from faulty conditions of the urine, but he was not able to help them materially in a week or two weeks, but by keeping track of them for six months he had cured them. There was something in their habits and in their method of eating which occasionally caused a variation in the urine which the practitioner did not always correct. There might be hyperacidity crystals, the result of faulty metabolism. Persistent medical treatment was sometimes neglected by gynecologists as well as by other practitioners who devoted their attention to surgical diseases.

DR. HOWARD A. KELLY, of Baltimore, said that some of these cases had been the distress of his life, so far as treatment was concerned, while others were gratifying to treat for the reason that they got well so promptly. As a rule, very little pus was found in the urine or none at all, and he had never found organisms. If he found organisms in the urine he examined the kidneys. In those cases Dr. Garceau had been speaking of, the irritation might start inside and leave a real trigonitis due to irritability of the trigonum or a hyperemia. He did not find fissures in this group of cases. He had seen polypi in this group. Sometimes the hyperemia was intense. He recalled one case in which absolutely nothing could be seen. He had relieved the patient some, and this was the reason she came back, but he was not able to cure her. He found in a number of cases hyperacidity, and when this was corrected, occasionally the patient got marked relief. After all, the sheet anchor was nitrate of silver. Sometimes he tried good strong treatment first, then followed it with milder ones, using a five per cent. solution at intervals of three to five days or a week.

DR. GEORGE H. NOBLE, of Atlanta, Georgia, described a simple method of shortening the uterosacral ligaments. To prevent retroversion the body of the uterus was held forward by shortening the round ligaments. For this purpose he preferred an extraperitoneal operation, embedding the ligaments between the layers of the aponeurosis anterior to the recti muscles.

THE USE OF THE CONTINUOUS FIXED LAPAROTOMY SPONGE.

DR. W. FRANCIS B. WAKEFIELD, of San Francisco, stated that as the matter of sponges was usually handled in the average operating room, it was quite remarkable that loose sponges were not closed up in the abdominal cavity oftener than they were. A sufficient number of surgeons throughout the country had used the continuous laparotomy sponge a sufficient length of time to prove conclusively that abdominal operations could be efficiently performed without the use of the dangerous loose sponge. This being so, it followed logically that as time went on and the knowledge of this fact became more widespread, surgeons would find it increasingly difficult to obtain, in courts of law, extenuation for having left a sponge in the abdominal cavity.

DISCUSSION.

DR. GEORGE GRAY WARD, of New York City, said that for the past five years he had abandoned the use of separate sponges and had been using a continuous sponge in the form of a roller bandage, about three yards long and six inches wide, folded in four or five thicknesses of gauze. In his service no loose sponges were used in the abdomen. This roller bandage was unrolled as it was required, and the ends of it were tucked underneath the flanks, held back by the intestines and clamped to the laparotomy sheet.

DR. I. S. STONE, of Washington, D. C., stated that there were quite a number of cases on record where foreign bodies had been left in the abdominal cavity after operation, and why was it not proper for an individual, who trusted the surgeon to operate upon him or her, to grant the surgeon a *carte blanche* to do what was best and the patient accept the responsibility. It was about time for surgeons to take a stand with regard to operating upon free patients and doing free work in hospitals, and then possibly be sued for twenty or fifty thousand dollars, if they were worth that much, as a result. The profession had done very little to protect itself against suits of this character. It would seem to him that surgeons were at the mercy of the public, and especially of that class anxious to make the surgeon pay who had a good income.

DR. JOHN F. THOMSON, of Portland, Maine, said the essential thing was the count of whatever was used in the form of sponges. This was applied at his private hospital in Portland to everything practically which possibly went through the abdominal incision in the operating room, the sponges being counted by two nurses, and counted before and after operation. Sponges might by accident be left, and he insisted on the count as being essential.

DR. J. WESLEY BOVEE, Washington, D. C., said the plan he followed was to have a tape attached to each sponge that went into the abdominal cavity. If one used five or six sponges in the abdomen with a tape on each, he knew how many were put in and he knew when they came out. He would rather trust his own count than be responsible for the count of one or two nurses.

DR. BROOKS H. WELLS, of New York City, stated that even the tape might go astray. In the only case he recalled in which a sponge was left inside the abdomen, the sponges were carefully counted before and after operation by a nurse, and they were all supposed to have tapes sewed on them with a weight on the end of the tapes. The patient, however, made a very good convalescence, but about eight or ten days thereafter she was brought into the clinic room and a sponge was removed from the cul-de-sac.

DR. GEORGE H. NOBLE, of Atlanta, Georgia, said that sometimes in appendicitis cases he used a long strip of gauze, but when it came to the sponges he used one at a time, taking it out as soon as he put it in. There was a string attached to the sponge. This was the safest plan to follow in using sponges in the abdominal cavity.

DR. BENJAMIN R. SCHENK, of Detroit, Michigan, stated that the method they had followed at the Harper Hospital was to use large abdominal towels, using no sponges at all in abdominal operations. Some operators used gauze strips that were introduced into the abdomen, and these were numbered from one to eight, and the nurse must find every number.

DR. CHARLES E. THOMSON, of Scranton, Pennsylvania, by invitation, mentioned a case in which, according to the records, no sponge had been used. There was no occasion to use one as it was a simple exploration, and yet a sponge was found later in the abdomen.

DR. FRANK T. ANDREWS, of Chicago, said he used small sponges which were carefully counted and carefully labeled with red marks. Sometimes he used a six foot strip with a nickle ring attached to the end of a two-foot tape.

DR. BROOKE M. ANSPACH, of Philadelphia, had followed Dr. Clark's custom in the University Hospital, that is, to do all isolating by means of gauze taken from a long roll, using two or three thicknesses, The roll was probably four or five feet long, so that there was only one piece used to pack off the intestines and isolate the operative area. Twelve sponges were used for exposed bleeding points, and these were carefully counted, but as soon as bleeding ceased they were removed.

GYMNASTIC AND OTHER MECHANICAL MEANS IN THE TREATMENT OF VISCERAL PROLAPSE AND ITS COMPLICATIONS.

DR. FRANKLIN H. MARTIN, of Chicago, said that the treatment was based on the systematic reversal of the processes which caused or aggravated ptosis, including: (a) the placing of the patient regularly and at short intervals, in the Trendelenburg position; (b) systematic, active or passive exercises, of the muscles of the abdomen, back and chest, which were at fault as a result of ptosis, while the patient occupied the Trendenlenburg position; (c) the prescribing and adjusting of properly designed temporary abdominal supports or corsets while the patient was in the perpendicular position; (d) proper instruction to the patient as to how to overcome the vicious habit of incorrect body attitudes often found in this condition, including exercise in the open air, diet, etc.

DISCUSSION.

DR. W. FRANCIS B. WAKEFIELD, of San Francisco, said he had been using a course of treatment for the last few years almost identical with that described by the essayist, and the results had been extremely satisfactory. Surgeons were shortsighted if they allowed some of these women, who advertised physical culture treatment in the popular lay journals, to treat this class of cases. One could take an intelligent nurse and train her to understand the principles of the application of such treatment and to make use of it intelligently, and it was better to take the necessary pains to do this and take these cases out of the hands of those outside of the profession and resort to a means of cure that would be very useful in the profession.

DR. CHARLES P. NOBLE, of Philadelphia, said that these enteroptotic patients were part dead when they were going around. Their vitality was low. The treatment recommended by Dr. Martin gave them exercise and enabled them to eat more, and therefore, they developed more energy and were better. What they needed was rest. They should be fed abundant and wholesome food.

DR. CLEMENT CLEVELAND, of New York City, said the posture the essayists spoke about was not the Trendelenburg, but merely an inclined posture with the head downward. The Trendelenburg posture required relaxation not only of the abdominal muscles, but of the psoas muscles. In order to get this it was necessary to flex the thighs upon the pelvis with easy lifting, and the only table which did this was named after the speaker, it having been in existence for years.

DR. RICHARD R. SMITH, of Grand Rapids, Michigan, said that when these women came to the gynecologist they came in a great majority of cases in a state of fatigue. A woman who was enteroptotic and in a state of equilibrium, who was leading a life within her strength, did not suffer at all, but went about and did her work, and took her part in society with other women. She had a certain amount of vitality, but she gave out more easily. Then she consulted a gynecologist. The keynote was that she needed rest, both physical and mental. She needed to improve her nutrition, which meant better food, fresh air, or whatever other means might be employed.

DR. WILLIAM S. STONE, of New York City, said there were two specific details that had given him great satisfaction in connection with the treatment of these cases. He had found walking was one of the best forms of exercise. If the principles were carried out, it meant exercise and rest. A specific way of doing this was to tell the patients to take a walk and walk a little farther than they wanted to, and they should take the walk at such time so that when they reached home, without doing any work physical or mental, they were to lie down on the bed or sofa for the same length of time that was consumed in taking the walk. They should be trained to carry out regular exercises, which should be immediately followed, after they got home, by rest. In addition to that, he relied in helping the circulation upon a good, brisk, careful rub.

DR. MARTIN, in closing the discussion, said the treatment he had outlined was developed in connection with the treatment of surgical cases, in the treatment of kinks of the ileum, in the transverse colon, and in conditions that were operated for by Lane and for which he gained a considerable reputation. The treatment would relieve the Lane kink that was produced by ptosis. There was no question about this.

THE TORSION OF TUBAL ENLARGEMENTS WITH REFERENCE ESPECIALLY TO PYOSALPINX.

DR. BROOKE M. ANSPACH, of Philadelphia, reported the case of a woman, twenty-six years of age, who entered the hospital with the clinical symptoms of acute appendicitis. Operation revealed tor-

sion of the right tube and ovary. The tube was distended and filled with pus. The ovary was closely applied to the tube. The mass was purplish black in color, and almost entirely free of adhesions. Tuberculosis was suspected as the underlying cause of the pyosalpinx, but the histological examination did not confirm the opinion.

Two years later the patient returned for another operation, and the left tube was found to be tuberculous. It was considerably enlarged and evidently represented the condition of the right tube before torsion had occurred. Histological examination showed typical miliary tubercles.

The author then took up the subject of torsion of tubal enlargement in general, and analyzed 95 cases which he collected from the literature. The variety of tubercular enlargement which most frequently underwent torsion was a hydrosalpinx. Extopic pregnancy and cysts originating in the tube itself and malignant tumors were other causes.

There were twelve cases of twisted pyosalpinx reported in the literature. A considerable portion of these were proved to be tuberculous, and it was likely that tuberculosis was the cause of at least half of the reported cases.

DISCUSSION.

DR. FRANKLIN H. MARTIN, of Chicago, said that within the past two years he had written and published an article on congenital pelvic defects, the principal defect being the perpendicular pelvis, and the other defect being the loose mesentery. In this paper he dwelt particularly upon the proneness to displacement of the appendages and of the uterus in these particular cases. As was known, there were two reasons why this should occur. In the normal fully developed individual the broad ligament blended forward of the middle line of the pelvis, so that the uterus and the appendages naturally were drawn forward of the middle line, and hence fell naturally anteriorly rather than posteriorly in case their mesenteries were blended front of the middle line. In the normal individual the pelvis was rotated to nearly right angles to the perpendicular pelvis, and besides that the broad ligaments were blended well forward so that the uterus was drawn in that direction and also its appendages. In the well developed woman the mesosalpinx was extremely short. One could not get torsion in the normally developed woman. It was in those that were defective that we had the unblending of the mesenteries in which the ureter stood out, as in the dog, and in lower animals we were liable to get this condition of displacement of the appendages and torsion.

DR. HENRY T. BYFORD, of Chicago, said that given a twisted pedicle in a case of sactosalpinx, if peritoneal adhesions occurred there was pain, a little temperature, perhaps, but no sepsis, and intestinal adhesions would occur and colon bacillus infection probably. The patient will run on to the development of a serious condition and we did not know how. If these cases were taken in hand early, when there was but little infection, or if one could make an approximately accurate diagnosis of the condition existing, he would be safe in operating, as the essayist did, without expecting to find much sepsis and the danger of spreading sepsis.

DR. JOHN A SAMPSON, of Albany, operated his first patient in 1904 for an acute pelvic inflammatory condition, and he found at the operation the right tube with a twisted pedicle, similar to the one described, except it was twice as large, and also an enlarged tube on the opposite side. The right tube and ovary were removed, also the left tube. The operation was done in the Johns Hopkins Hospital in the service of Dr. Kelly. The patient's age was 19.

The second case he operated a year and half ago. The patient was 21 years of age. She gave a history of a sudden attack of severe abdominal pain, associated with nausea and vomiting. She had a soft uterine tumor. He made a diagnosis of ovarian cyst with twisted pedicle. At the operation he found an enlarged tube on the right side, which was hemorrhagic, with distinct twisting of the pedicle; also an enlarged tube on the opposite side, elongated, and to all appearances a pyosalpinx. Supravaginal hysterectomy was done together with the removal of the right tube and ovary and left tube. The specimen was placed in the position it occupied in the pelvis. A year and a half later it was injected with a solution containing a suspension of red led. The tube, with the twisting of the pedicle, was not involved in the twist. It showed an elongated tube on the opposite side. The tube on this side was examined microscopically and proved to be tubercular.

DR. JOHN O. POLAK, of Brooklyn, New York, placed on record the report of a case of twisted pedicle and tube. This occurred in a patient, 19 years of age, apparently of the type Dr. Martin had described. The operation was done three days after the primary attack of acute abdominal pain, and one interesting point in connection with this case was the extreme size of the tube which measured eight by ten centimeters in its distension, and the fact was that the ovary was not involved at all in the twist the twist being in the free portion of the tube and isthmic portion of the tube and the pelvis being free from any adhesions.

This was a case which undoubtedly was primarily a hematosalpinx which had become infected. On microscopic examination there was no evidence of tuberculosis, but colon bacilli were found in the contents of the tube.

DR. E. E. MONTGOMERY, of Philadelphia, stated that some years ago a young lady, 22 years of age, consulted him. She was suffering from a severe attack of pain in the pelvis which came on so suddenly as to lead to the suspicion of ectopic gestation. On opening the abdomen both tubes were found filled with pus, with twisting of the pedicle of the left tube. There was quite an extensive hemorrhage into the peritoneal cavity from the removal of the sac as the result of interference with the circulation. The environment of the patient rather led him to believe it was a case secondary to a gonorrheal infection. No examination, however, was made of the specimen microscopically.

DR. ANSPACH, in closing the discussion, and in replying to a question of Dr. Martin with regard to a predisposition to torsion by the shape or type of tube stated that in his case there was a decided abnormality in that direction. The tube was much longer. On this side it was seventeen centimeters in length. There would be plenty of room for a twist, and with the heavy extremity absolutely free it could occur. He did not think it occurred on the left side because the ovary was adherent; whereas, he believed the right ovary was originally unaffected by the adhesions of the left ovary.

(To be continued.)

Book Reviews.

The Pituitary Body and Its Disorders. By Harvey Cushing, M.D., Associate Professor of Surgery at the Johns Hopkins University, Professor of Surgery (elect) Harvard University. An amplification of the Harvey Lecture for December, 1910. Philadelphia and London: J. B. Lippincott Company. 1912.

Here is an excellent book, admirably illustrated, systematically arranged and intensely interesting. To the great majority of the medical profession its subject is terra incognita, though, as Dr. Cushing says in the preface, "there is every reason to believe that cases of clinically recognizable pituitary disease are at least as common as are cases of recognizable thyroid disease." Nothing more is needed to show the amount of disease which has been passing almost unseen before our eyes.

Every book whose object is to impart knowledge may be judged first from the standpoint of what variety and amount of knowledge it actually contains—and second as to the method and efficiency by which its facts are presented and made clear. As to its contents, the book is, of course, unique in America, and probably in the world. It would seem to contain all essential facts known about the subject at the time the manuscript went into the printer's hands and a large number of these facts have been demonstrated by the untiring research, the unusual skill and the enthusiasm of the author.

The form in which its facts are presented is certainly effective, logical and complete. Again, as in Dr. Cushing's monograph on Surgery of the Head in the third volume of Keen, the subject is systematized perfectly, subdivided into well defined groups, and made consecutive with a skill often lacking in the work of otherwise methodical men. In its plan of attack it is not easy to see where improvement might be introduced.

The volume is of convenient size, about 300 pages, with an equal number of pictures, good in themselves, and helpful in supplementing the text. The printing is excellent, and variation in type appropriately employed. Paper and binding do credit to the publisher. The dedication reads:—

"In loving memory of three physicians—Erastus, Henry K. and Edward F. Cushing."

The book should be read and owned by every one interested in the great recent advance of medicine and surgery, and by those who believe that form and method should hold an important place in medical literature.

Arteriosclerosis: Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis and Treatment. By Louis M. Warfield, A.B., M.D. With an introduction by W. S. Thayer, M.D. Illustrated with twenty-eight engravings. St. Louis: C. V. Mosby Company. 1912.

The first edition of this work was reviewed in the issue of the Journal for April 15, 1909 (Vol. clx, p. 487). So many changes and additions have been made to this original that the present second edition is practically a new book. The entire work has been carefully revised. The chapters on pathology and physiology have been completely rewritten, and two new chapters have been added on "The Physical Examination of the Heart and Arteries" and on "Arteriosclerosis in Its Relation to Life Insurance." The special section on blood pressure has been wholly rewritten and much expanded, with the addition of several new figures illustrative of modern methods and procedures of technic. There has been appended an excellent and useful bibliography of 74 titles, grouped under appropriate captions. The book maintains the merit ascribed to it in our previous review, and remains the principal work in English on this important subject. Those, however, who wish to pursue the topic further may to advantage compare this book not only with the references given in the bibliography but also with Leclerq's admirable French treatise on arteriosclerosis, reviewed in the issue of the Journal for Aug. 24, 1911 (Vol. clxv, p. 298).

Elementary Bacteriology and Protozoölogy. By Herbert Fox, M.D. Illustrated with 67 engravings and 5 colored plates. Philadelphia and New York: Lea and Febiger. 1912.

This volume is intended for beginners, especially nurses. It deals with the microbiological causes of the infectious diseases. It aims to make clear how these microörganisms produce disease in man. Much technical material is omitted, "especially in the subject of biologic differentiation." Emphasis is laid on modes of infection and transmission and on elementary bacteriologic pathology. There are chapters on methods of sterilization and disinfection, on immunity, on the principal pathogenic organisms, and on infectious diseases of unknown etiology. There is an excellent glossary of technical terms. The plain and colored illustrative plates are particularly to be commended. The work should fill a place of great usefulness for both teachers and pupils in training schools.

Manual of Bacteriology and Pathology for Nurses. By Jay G. Roberts, Ph.G., M.D. Illustrated. Philadelphia and London: W. B. Saunders Company. 1912.

This volume, which is uniform with the series of text-books for nurses, issued by this publisher, is the result of the author's experience in teaching bacteriology and pathology in the Oskaloosa (Iowa) Training-School, and aims to present in brief form the essentials of these sciences, especially in their relation to the work of nurses in hospitals, schools, and in popular education in hygiene and the prophylaxis of disease. It is compact, logical, well written, arranged and illustrated, and does not transgress its legitimate limits.

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PATHOLOGY OF THE ROYAL EGYPTIAN MUMMIES.

THE issue of the *British Medical Journal* for Oct. 12 contains an editorial review of the recently published catalogue of "The Royal Mummies," prepared by Dr. G. Elliott Smith, F.R.S., formerly professor of anatomy at the Medical School of Cairo. It is a careful and minute description of a series of fifty specimens in the Museum of Cairo, comprising "all that is left of the great Pharaohs of ancient Egypt, their queens, and some members of their royal households." These royal Egyptian mummies Dr. Smith has surveyed not only with an antiquarian's and an ethnologist's, but also with an anatomist's eye, and he has taken pains to record pathologic and other scientific details about them which add immensely to the value and interest of his work.

"Specimen No. 61051, with which the catalogue opens, is the mummy of King Saqnounri, the last king of the seventeenth dynasty (about 2000 B.C.), whose battered skull and wounded body, showing signs of having been hastily embalmed, bear witness to sudden death by murder. We encounter the mummy of Menephtah, the Pharaoh of the Exodus, beyond the middle of the series as No. 61079; his father, Rameses II, figures here as No. 61078; his grandfather, the great Seti I, as No. 61077; his son, Siphtah, with congenital talipes of the left foot, is No. 61080; his grandson, Seti II, is numbered 61081. The series ends with Nos. 61099, 61100, two mummies from the tomb of Thoutmosis III. The manner in which embalming had been carried out showed that these two specimens belonged to a late dynastic or early Ptolemaic period."

Siphtah, with his congenital left club-foot, would have been better off as a hospital patient in the twentieth century A.D. than as a pharaoh in the twentieth century B.C.

"It was during the examination of the royal series, extending from the seventeenth to the twenty-first dynasty, that Professor Elliott Smith first recognized the evolutionary changes which affect the methods of embalming practised in ancient Egypt. He perceived then that it is possible to recognize the dynasty to which a mummy belongs by the technic employed by the embalmer. In many cases he was able to set the historian right—the sex or age in some cases proved incompatible with the identification originally made. The question of age raised many points concerning the dates at which epiphyseal lines are finally closed. The degree to which the teeth were worn proved an uncertain indication of age; Rameses II was an old man, but his teeth were little worn. Dental caries and abscesses were common in the royal household. The jaws of Amenothes III were riddled with alveolar abscesses. There were feminine weaknesses, too, in the royal households; the old bald ladies had the biggest wigs.

"It is wonderful, after the lapse of more than twenty-five centuries, that we should now obtain the material to form fairly accurate pictures of the appearances of the Pharaohs. In this catalogue we read that Menephtah, the Pharaoh of the Exodus, was a somewhat corpulent old man; the hands were placed in the position of grasping sceptres. Menephtah was almost completely bald, only a narrow fringe of white hair (now cut so close as to be seen only with difficulty) remaining on the temple and occiput. A few short black hairs were found on the upper lip, and scattered, closely-clipped hairs on the cheeks and chin. The process of embalming had been eminently successful, the body being well preserved, without much distortion. The aorta was in an extreme stage of calcereous degeneration, large bone-like patches standing out prominently from the walls of the vessels. The body had been packed with that white cheesy material, such as I found in many mummies of the priests of Amen of the twenty-first dynasty. A very curious feature is the complete absence of the scrotum. . . the distal portion of the penis is broken off and is missing. The mummy has suffered considerably at the hands of the plunderers. . . almost the whole of the anterior abdominal wall has been chipped away.

"The general aspect of the face recalls that of Rameses II (his father), but the form of the cranium and the measurements of the face more nearly agree with those of his grandfather, Seti the Great. Seti I and Rameses II exhibit in their cranial and facial features many alien traits, curiously blended with Egyptian characters; but in Menephtah the foreign element in his composition is more obtrusively shown than it is in either his father or his grandfather. He has the prominent high-bridged nose of his father, but a shorter and much broader cranium than either of his predecessors. In height

Menephtah is intermediate between his father and grandfather. His stature is 1,714 mm. (5 ft. 7.4 in.); his father, Rameses II, 1,733 mm. (5 ft. 8.2 in.); grandfather, Seti I, 1,665 mm. (5 ft. 5.5 in.); his son, Siphtah, 1,638 mm. (5 ft. 4.5 in.); his grandson, Seti II, 1,640 mm. (5 ft. 4.6 in.)."

Dr. Smith's observations on the royal teeth seem to indicate that dental caries was quite as common then in the mouths of monarchs as now in those of our school children. Moreover, the ancient Egyptians were not without primitive means for its treatment. In the Field Museum, at Chicago, has recently been placed an Egyptian dental forceps, believed to be the oldest instrument of its kind in existence, once the property of Sen-Hopet, "an Egyptian society matron of wealth and beauty, who lived in 2000 B.C." She was a contemporary, perhaps a favorite, of the murdered King Saqnounri, and the forceps were found, with many coins, a hand-mirror, and two bath-tubs, in the ruins of her house.

Such discoveries, which seem to extort

"The secret hid
Under Cheops' pyramid."

perhaps show that after all there is no secret, except that human beings have, within attainable knowledge, been always much the same as now they still are.

THE MENACE OF THE MENTALLY DEFECTIVE.

UNDER date of Oct. 15 three prominent alienists, Dr. Carlos F. MacDonald, Dr. William Mabon, superintendent of the Manhattan State Hospital for the Insane, and Dr. Max G. Schlapp, professor of neuropathology in Cornell University Medical College and the New York Post-Graduate Medical School, came out in a published statement in which attention is called to the grave social condition brought about by the increase of mentally defective individuals like Schrank, who committed the murderous assault upon ex-President Roosevelt, and the complete freedom with which they roam about.

"No provision," they say, "is made by the State to identify such individuals, to safeguard the people and public men from their attacks, and to segregate them where they may be carefully guarded. Schrank's precise mental status, in the absence of any examination or clinical history of his case, we have no means of knowing; but it is apparent that he belongs in the class of mental defectives who are potentially criminals, liable at any moment to commit deeds of violence, upon the slightest provocation, to redress trivial or imaginary wrongs. According to present report, Schrank is 36 years old, and he lived in this city and has known Col. Roosevelt since he was Police Commissioner here in 1895, or since the age of 19. In all probability he then showed traits of character indicative of the mental habit which impelled him to this act. It is certain that numbers of such ill-balanced individuals, mentally and morally defective, are today at large in this city, who in early life attended its schools and mingled with pupils of normal mentality quite unrecognized by the authorities. And why? Because there is as yet no established system whereby experts can see such individuals and judge whether the community should be safeguarded against them. But on this day the Department of Public Charities formally proposed, at the meeting of the committee on primary schools of the Board of Education, the establishment of a clearing house for the examination of mentally defective persons, under the charge of a body of accredited experts in mental and nervous diseases. Under its plan each person referred to the bureau is to have a thorough examination to determine the particular nature and degree of his disability. Complete records are to be kept in each individual case, and nurses will assist in making a careful investigation into the history and environment of the subject and his family. This process, safeguarded in the interest of the patient, as well as of the public, will aid in determining whether he is a potential menace to the community or to himself, in the sense that he might develop wayward, immoral or criminal traits. According to his condition or manifested tendencies, the bureau, so soon as proper facilities are provided, shall in each case advise a proper course of action. The plan for the bureau is comprehensive, embracing the co-operation of various city departments—those of Health, Police, and the Children's Court—as well as of private societies and agencies like the Society for the Prevention of Cruelty to Children, and of dispensary and social workers and other persons who may wish to refer mentally defective or grossly eccentric subjects to it for examination. The benefits to the community from such a plan, properly executed, would be many. It would co-ordinate all activities into one bureau organized to keep scientific records of the mentally defective individuals in this community, bringing about for the first time in its history their complete classification. The success of the bureau would depend upon the cordial co-operation of all the public departments and private agencies. It is sincerely hoped that the importance of this need will be felt, and that, in the application of some effective and comprehensive measure, it will be met."

It is now definitely announced that a clearing house for mentally defective children, such as that referred to in the above communication,

will shortly be opened by the Department of Public Charities, as a subdivision of the Bureau of Dependent Adults. It is to be under the direction of Dr. Schlapp, who will be assisted by several competent physicians who have had the special experience required for the purpose. At first the examinations will be made at the Post-Graduate Hospital, and in the next city budget the department will ask for an appropriation to provide for a suitable building.

THE VALUE OF FRESH AIR.

IN the fall of 1911 an experiment was instituted in one of the Brookline public schools to demonstrate the advantages of fresh air rooms for pupils, whether diseased or not. For this purpose such a room was established, and careful comparative observations taken of its inmates and of those of an ordinary closed school room.

"To this room (in the Parsons School) as much fresh air was admitted by open windows and doors as was permitted by a room temperature that was seldom allowed to fall below 55° F. The children were protected against cold by khaki sleeping bags, and they replaced their street shoes with suitable slippers, thus keeping the bags free from dust. At one recess a glass of pure rich milk was given each child.

"In the neighboring Winthrop School the children of the same grade, the second, had the ordinary room temperature of about 65 to 68°, and no milk was given them. For purposes of comparison, the weight of each child in the two sets was taken each month, October to June, inclusive, eight months in all, and the height of each child was taken at the beginning and at the end of this period. The weight and height were taken without shoes or sweaters. A monthly record of attendance was also kept in both rooms. Owing to the careful oversight of the teacher in the fresh-air room, no discomfort was experienced by the children, and not a single complaint was received from any parent."

As a result it was found that the children from the fresh-air room had made more rapid gains in height, weight, and efficiency than those in the ordinary school-room. Commenting on these results, Dr. H. Lincoln Chase, medical inspector of schools in Brookline, points out that the most important part of this demonstration is its educative power in making parents in general realize the value of fresh air for their children at all times.

"All rooms should be fresh-air rooms. All children need to breathe pure, cool, normally moist, moving air. It is not important whether they breathe such air because they are debilitated or because they are well. They all need it in either case.

"Even if we were to confine our attention to the anemic, debilitated and other delicate children, it would still be necesary that all the schoolrooms should have fresh air, because these delicate children are not found in groups of twenty to thirty each in a single building in a single grade, but are scattered through the grades and through all the schools, sometimes one, two or more in a room. It would cost the town of Brookline a pretty large sum of money to look after the anemic children in separate rooms, whereas the same thing can be done at comparatively little expense by opening the windows and doors in every room in every school. We should, it is true, incidentally improve the health of the children already well, but that is a result which we would not deplore. The essential thing as to breathing in a schoolroom is the admission of air that is at all times pure, cool, in motion, and of normal moisture. These essentials are secured in the type of fresh-air school room that we have just had experience with."

One of the most baneful of the traditional fallacies under which the world still labors is the fear of fresh air. Such work as this in Brookline should help dispel the persistent prejudice against it and make gradually easier the introduction of adequate ventilation in other public places of assembly and conveyance.

POST-MORTEM EXAMINATIONS.

AT a recent meeting of the Associated Physicians of Long Island, a large and representative body composed of members of the profession in Kings, Queens, Nassau and Suffolk Counties, the president-elect, Dr. William B. Brinsmade of Brooklyn, called attention in his address to the pressing need of more frequent post-mortem examinations as an aid to the advancement of scientific medicine. With a view to practical work in furtherance of this object, a committee was at once appointed, with Dr. William A. Browning as chairman, to take steps for the inauguration of a movement for the education of the public in regard to the essential value of autopsy; and at a meeting of the association on October 5 the first results of the committee's labors were demonstrated. The meeting was held on Hoffman Island, by the invitation of Dr. Joseph P. O'Connell, Health Officer of the Port, who took the society on a steamboat excursion to Quarantine, and on this occasion all the members present, some 200 in number, voted in favor of a resolution by which, as an example to the community, they pledged themselves their bodies for autopsy purposes; each one agreeing to direct his

heirs or executors to have a post-mortem examination made.

In the issue of the *Sun* for Oct. 9 appeared the following editorial on this subject from the pen of Dr. Simon Baruch, entitled "Medical Altruism in Brooklyn":

"The action of the Associated Physicians of Long Island, reported on October 7, furnishes another demonstration of our contention that there are no other members of a community who voluntarily sacrifice their financial interests, their time, labor, comfort and health, in many notable instances life itself, for the public welfare as do the members of the medical profession. Here is an example of sacrificing a sentiment sustained by long established custom, when two hundred men unanimously resolve to submit their own bodies to post-mortem examination, in order to overcome the baseless prejudice against this most useful and often only method of ascertaining the cause of death.

"The progress of medicine, a matter in which the public is more deeply involved than it unfortunately appreciates, was thwarted for many centuries by the superstitious regard for the sanctity of the human body after death. In the days of Hippocrates and Galen and for several succeeding centuries when the human body was regarded with little respect during life, being sacrificed in large numbers in wars of conquest, the law forbade dissection and compelled physicians to study anatomy on animals, with the results that the most earnest men fell into the errors that led to much loss of life. Andrea Vesalius 'took his life in his hands' when he dissected a human body surreptitiously and offered to his colleagues and disciples the first correct anatomical data. It is indeed a matter of astonishing note that this singular superstition has survived when many others have succumbed to the steady and inexorable march of enlightenment.

The multilation inflicted by the pathologist's instruments which arouses in the minds of well meaning but unthinking people that feeling of repulsion upon which prejudice is chiefly based is to the reflecting mind infinitesimal when compared to that inflicted by the tooth of time; indeed, the latter always obliterates the former. The sentimental groundwork of this harmful prejudice is demolished by this consideration. Every intelligent person realizes how difficult is diagnosis and how often recovery is hampered if not entirely thwarted by incorrect or impossible diagnosis. That the latter has become more positive under the investigation of pathologists is a well known fact.

"Those who are most competent to judge, the physicians, have again admonished the public that it is endangering its own most valuable interests in opposing post-mortem examinations. The enlightened action of the Brooklyn fraternity not only reflects credit on its self-sacrifice but affords a manifestation of common sense and knowledge of human nature which is rarely encountered among medical men, who too often are absorbed by scientific and ethical matters to the exclusion of pressing practical affairs of life."

Comment on this important topic has already been made, in the issue of the JOURNAL for Sept. 5 (Vol. clxvii, p. 344). It is to be expected, however, that it may be long before the general public will follow the commendable example of the New York physicians.

MEDICAL NOTES.

DR. FLEXNER AS HUXLEY LECTURER.—On Thursday, Oct. 31, the Huxley lecture was delivered at the Charing Cross Hospital Medical School, London, by Dr. Simon Flexner, of the Rockefeller Institute for Medical Research, New York, on the subject of "Recent Advances in Science in Relation to Practical Medicine."

CONTROL OF TUBERCULOSIS IN FRANCE.—Report from Paris on Oct. 18 states that Dr. Letulle, secretary of the standing committee of the French Academy of Medicine, has recently introduced before the legislature a measure establishing compulsory notification of tuberculosis, and giving proper medical authorities the right to segregate tuberculates and initiate such hygienic measures as may seem best to check the present rapid spread of the infection in that country.

SOME RECENT COMPARATIVE DEATH RATES.—The death-rate from measles in the United States in 1910 was 12.3 per cent. in 100,000 cases, that from scarlet-fever 11.6, that from whooping cough 11.4, that from diphtheria 2.14.

A ROYAL MISCARRIAGE.—Report from The Hague on Oct. 23 states that Queen Wilhelmina of the Netherlands has recently again had a miscarriage. This is the third obstetric disaster which she has had, her only living child being a daughter at her second pregnancy.

POLIOMYELITIS IN BUFFALO.—During the week ending Oct. 12, only 10 new cases of poliomyelitis were reported in Buffalo, N. Y., making a total in the present epidemic of 326 reported cases, of which 288 have been verified as authentic. Thus far there have been 35 deaths of the disease, making the present mortality of this epidemic approximately 12%.

GIFT TO JOHNS HOPKINS HOSPITAL.—In the issue of the MEDICAL JOURNAL for August 29, 1912, we noted the gift of $220,000 to the Johns Hopkins Hospital, Baltimore, by Mr. James B. Brady, of New York. It is now announced that Mr. Brady has increased this gift to the sum of $500,000.

TRANSFER OF A HOSPITAL.—A press report from St. Louis, Mo., on Oct. 25 describes the recent transfer of a railroad hospital property from the company to its employees and officials:

"The Missouri Pacific-Iron Mountain Railroad has completed the formal transfer of its hospital funds and property to its employees and officials, who have contributed small sums out of their salaries each month toward the support of the hospital service. The cash turned over by the company amounts to $193,767.73. In addition, the railroad transferred to the men all its hospital real estate and the furnishings and equipment of the buildings, including the large hospital building in St. Louis and surrounding grounds, 300 by 274.64 feet. The value of cash, real estate and furnishings all told approximates $250,000, after allowing for depreciation in the value of the St. Louis building, erected a number of years ago.

"The Missouri Pacific-Iron Mountain started its hospital service about thirty years ago, and the cash and property now on hand have been accumulated in that time by careful and judicious handling. Probably 90 per cent. of the holdings are the result of small contributions received monthly out of wages of employees now either dead or out of the company's service. It being an impossibility to return the property and cash to the original contributors, the claim was raised that the railroad was entitled to retain them, as the surplus was due to its careful management; and that the present employees had no right to the funds. President B. F. Bush, however, took the stand that the money was paid in for hospital purposes and that the entire fund, real estate, buildings and all other property, should be turned over to the present employees for such purposes. Through his efforts, a resolution authorizing this disposition was passed at a meeting of the directors in New York, and the transfer was completed at the first meeting of the recently elected employees' board of hospital service managers, just held."

CONSIGNMENT OF TSE-TSE FLIES.—On Oct. 8 a consignment of tse-tse flies from the Congo for purposes of scientific study arrived in New York aboard the steamship *Finland*.

BOSTON AND NEW ENGLAND.

MEETING OF HOMEOPATHIC MEDICAL SOCIETY.—The semi-annual meeting of the Massachusetts Homeopathic Medical Society, held in Boston recently, was attended by about 200 members. Addresses were made by Dr. George R. Southwick, the president, and by many others. The business session was held in the Robert Dawson Evans Memorial Building.

MASSACHUSETTS WOMAN'S HOSPITAL.—It is announced that the legal title of the Woman's Charity Club Hospital, on Parker Hill, Roxbury, has been changed to the Massachusetts Woman's Hospital.

DEATH OF A HEAVY MAN.—Everett Shaw, who died on Oct. 17 at North Abington, Mass., is reported to have weighed 400 pounds. He was 40 years of age.

SMALLPOX IN VERMONT.—Report from Barre, Vt., on Oct. 18, states that smallpox is at present epidemic in that town. Twenty cases of the disease have already been reported. The Vermont State Board of Health has ordered all the local schools, churches, and theatres closed indefinitely, in the effort to check further spread of the infection, the source of which has not been positively determined.

DIPHTHERIA AND SCARLET FEVER IN MIDDLEBORO.—Report from Middleboro, Mass., on Oct. 19, states that diphtheria and scarlet fever are both prevalent among children in one of the local schools, which has been consequently closed. The disease is also epidemic at Waltham, Mass., where one death from it is reported to have occurred on Oct. 18.

CONVICTION FOR FAILURE TO REPORT CASE OF DIPHTHERIA.—Through the activity of the Boston Board of Health a physician of this city has cently been fined $50 because of failure to report a case of diphtheria to the Board.

HOSPITAL CONCERTS FOR NOVEMBER.—The concerts of the Boston Hospital Music Fund for November have been announced to be held as follows: On Nov. 2, at the Boston Insane Hospital, Mattapan; on Nov. 3, at the New England Baptist Hospital, Roxbury; on Nov. 10, at the Free Hospital for Women, Brookline; on Nov. 17, at the House of the Good Samaritan, Brookline; on Nov. 24, at the Somerville (Mass.) City Hospital, and on Nov. 28, at the Massachusetts General Hospital.

New York.

Evasion of Meat Inspection.—A press despatch on Aug. 10 describes an extensive traffic in diseased animals for human food which, it is averred, has for some time been carried on between farmers, commission men in New Jersey and certain wholesale butchers in New York City.

"The butchers, of whom there are many in Brooklyn, are known to the government inspectors as 'unofficial'; that is, they have agreed not to sell meat outside the state, and for that reason they are not subject to the strict federal inspection.

"The facts of this traffic have been traced out by a study of every step of the business from many small shipping points in Delaware county, N. Y., to the manufacturing rooms of the butchers here.

"The federal government takes the position that it has no right to inspect cattle, hogs and other food animals where the stock orignates and is to be consumed within the limits of a state, even when such animals in course of transit pass through a neighboring state.

"On the other hand the state does not greatly concern itself with shipments of cattle that are bound for points outside the state.

"Thus the present situation is created. By sending his animals from his New York farm to a commission merchant in Jersey City, N. J., the farmer takes his stock from the none too watchful eye of the state inspector; he is then engaged in inter-state commerce, and the state inspector turns over the whole duty of examination and condemnation of unfit animals to the federal authorities.

"But when the animals reach Jersey City, they are not sold to the houses dealing in interstate trade, but the small stock butcher of Brooklyn picks up the animals for a low price, and has them shipped to his house in this state.

"As the animals originate in this state and as they return here to be killed and sold by the 'unofficial' houses, they are in turn taken from the scrutiny of the federal inspector. Carload after carload of diseased cattle is shipped from Delaware county and the crime is made even greater by the absolute freedom with which the shipments are made."

If these allegations prove to be true, it would seem that either the national, the state, or the municipal authorities should intervene to prevent the continuance of this pernicious evasion of the law.

Recent Hospital Bequests.—By the will of the late William Hall Penfold of New York $75,000 is left to charitable institutions. The Adirondack Cottage Sanitarium receives $25,000, and St. Mary's Free Hospital for Children, the Presbyterian Hospital, the Children's Aid Society, the Charity Organization Society, and the New York Association for Improving the Condition of the Poor, each $10,000. Edmund Penfold receives the residuary estate and the income of $300,000 for life, and at his death this is to be divided among the above institutions and seven others; among which are St. Luke's Hospital, the Manhattan Eye, Ear and Throat Hospital, and the Home for Incurables.

By the will of the late Mrs. Marian DeForest Clark of New York the Society for the Relief of the Ruptured and Crippled and the New York Orthopedic Dispensary and Hospital each receive bequests of $7,500.

By the will of the late Benjamin Guggenheim of New York, who was lost on the *Titanic*, $115,000 is devoted to philanthropic bequests. Among the institutions receiving $10,000 are the Mount Sinai Hospital and the United Hebrew Charities, and among those receiving $5000 are the Montefiore Home and Hospital for Chronic Invalids and the St. John's Guild Floating Hospital.

By the will of the late Mrs. Marian Cutting, widow of Brockholst Cutting of New York, $50,000 is left to the corporation of the St. Clare Home of Newport, R. I., to build or equip a building to be known as the Cutting Memorial, in memory of her sons, Brockholst and William Cutting, and to be used for the benefit and uses of the sisters of charity in care of the sick poor. In addition, $100,000 is left in trust to the Newport Trust Company for the maintenance of this memorial. Other charitable bequests in the will are $15,000 each to the Asylum of St. Vincent de Paul, New York, and the Home for the Aged, New York, under the charge of the Little Sisters of the Poor.

Limitation of Hours of Factory Employment.—A law of far-reaching importance went into operation in the State of New York on October 1, that limiting the hours of employment in factories for women and boys and girls under 18 years of age to 54 hours a week. This new amendment to the State labor law is the direct outcome of the agitation following the disastrous Triangle shirtwaist factory fire, in which so many lives were lost, and thereby calling attention to other defects of the factory system besides lack of adequate protection from fire. It affects more than 300,000 women, of

whom nearly two-thirds are employed in New York City. It permits women and boys to be employed over-time one hour per day, provided that the total hours of labor for the week do not exceed 54; but they must not be kept longer at work than four hours on the sixth day. An exemption from the operation of the law is made for canning factories between June 15 and October 15, during which period it will be lawful to exact 60 hours of labor per week.

Current Literature.

MEDICAL RECORD.

OCTOBER 19, 1912.

1. BARNES, F. M., JR. *The Syphilitic Psychoses.*
2. MEARS, J. E. *Surgical Psychoses.*
3. BRAUN, A. *The Significance and Management of Chronic Discharging Ears.*
4. HOLMES, B. *How the Department of Agriculture Treats the Loco Disease; a Lesson in Comparative Psychiatry.*
5. GUILE, H. V. *The Differential Diagnosis of Alcoholic Coma.*
6. HAGNER, F. R. *Report of a Case of Extirpation of the Bladder for Malignant Disease.*
7. MACHT, D. I. *Celiac Parotitis in the Course of Malignant Disease of the Liver.*

NEW YORK MEDICAL JOURNAL.

OCTOBER 19, 1912.

1. EWING, J. *The Treatment of Cancer on Biological Principles.*
2. PEDERSEN, V. C. *Chronic Gonorrhea in the Male.*
3. WOODRUFF, C. E. *Blondes and Brunettes in the Tropics.*
4. ROBINSON, B. *Constipation and Anemia.*
5. KNAPP, M. I. *Diagnosis by Inspection.*
6. HILL, C. A. *General Surgical Infection.*
7. WOODBURY, M. S. *A Landmark; and Technic for Thyroid Measurement.*
8. *LAMBERSON, W. *The Early Diagnosis of Laryngeal Tuberculosis.*
9. WEILL, N. J. *Refraction with and without Cycloplegia.*
10. ROEHR, C. G. *The Surgical Treatment of Pest Bubo.*

8. Lamberson emphasizes the importance of early diagnosis of laryngeal tuberculosis. Every tuberculous patient, he says, should have a laryngeal examination when first seen and frequently during treatment. Tuberculous involvement of the larynx is not proportionate to the extent of the disease in the lungs. Many cases of serious tuberculous laryngitis may be aborted by treating a slight or intermittent huskiness of voice at the proper time. [L. D. C.]

THE BRITISH MEDICAL JOURNAL.

SEPTEMBER 28, 1912.

1. *COPE, V. Z. *Carcinoma of the Colon.*
2. *RICHARDSON, W. G. *Appendicitis: The Results of Operation upon 619 Cases.*
3. HENDERSON, T. B. *Spontaneous Reduction of Intussusception.*
4. MORITZ, M. *A Case of Fractured Pelvis Complicated by Laceration of the Femoral Vein Treated by Lateral Vein Suture.*
5. JOLLYE, F. W. *Reflections after Twenty-one Years of General Practice.*
6. CLARKE, C. *Sterilization of the Skin by Spirituous Solution of Mercury Perchloride.*
7. MADDEN, F. C. *Iodine as a Dressing for Operation Wounds.*
8. DALTON, F. J. A. *Iodine as the Sole Preparation and Dressing for Operation Wounds.*

THE BRITISH MEDICAL ASSOCIATION.

SECTION OF ANATOMY.

9. WRIGHT, W. *Introductory Remarks.*
10. MACEWEN, W. *Discussion on Development and Growth of Bone, Normal and Abnormal.*
11. THOMPSON, P. *The Diaphragm in a 7 mm. Human Embryo.*
12. GEDDES, A. C. *Abnormality of the Urinary System.*
13. GEDDES, A. C. *A Specimen Illustrating Pseudohermaphroditism.*
14. MANSON, J. S. *A Case of Transposition of Viscera.*
15. WRIGHT, W., AND BROWN, R. G. *A Contribution to the Anatomy of the Vestigial Structures in the Neighborhood of the Epididymis and Cord.*
16. DICKEY, J. S. *A Comparison Between Two Hearts.*
17. ANDERSON, R. J. *Some Notes on the Stomach.*
18. ANDERSON, R. J. *Asymmetry.*
19. HERTZ, A. F. *Discussion on the Anatomy of the Normal Stomach.*

SECTION OF PHYSIOLOGY.

20. MACDONALD, J. S. *Introductory Remarks.*
21. MOTT, F. W. *Discussion on the Bio-Physics and Bio-Chemistry of the Neurone.*
22. BROWN, T. G. *Note upon Some Dynamic Principles Involved in Progression.*
23. *FUNK, C. *The Substance from Yeast and Certain Foodstuffs Which Prevents Polyneuritis (Beri-beri).*
24. ROAF, H. E. *Discussion on Tissue Respiration.*
25. VERNON, H. M. *The Function of Lipoids in Vital Processes.*
26. MILROY, J. A. *Estimation of the Urea in Urine.*
27. MILROY, T. H. *Observations on the Production of Apnoea.*
28. ANDERSON, R. J. *Animal Activities in Relation to Training.*

1. Under this heading Cope discusses the symptoms of carcinoma of the colon, those due to obstruction, to ulceration, to the presence of a tumor, to extension to other viscera, to percolation, and last, general symptoms and those rare cases without symptoms. He briefly considers prognosis and treatment.

2. Richardson gives his personal opinion as to the most important symptoms of appendicitis and the best method of treating the four groups of cases: interval cases, acute cases, abscess cases, and those with general peritonitis.

23. Funk reports briefly upon a substance which he calls "vitamine," which can be isolated from rice-polishings and which has been found to be the factor in preventing beri-beri. [J. B. H.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 36. SEPTEMBER 5, 1912.

1. SEITZ, L. *The Hygiene of the Puerperium.*
2. SCHULTZE, F. *The Diagnosis and Operative Treatment of Tumors of the Spinal Cord and Its Membrane.*
3. VULPIUS, O. *Tendon Transplantation and Infantile Paralysis—Indications, Technic and Results.*

4. Esch, P. *Choice of Nutrient Media for Cholera Organisms.*
5. Lowenhaupt, K. *Two Cases of Dementia Paralytica and Childbirth.*
6. Bingel, A. *Diabetes and Pregnancy.*
7. Jacoby, M. *Treatment of Febrile Abortion.*
8. Rohleder. *Artificial Fertilization in Cases of Epididymitis Duplex.*
9. Klieneberger, C. *Hemorrhagic Encephalitis Following Salvarsan Infusion.*
10. Zimmern, F. *Critical Study of Reinfection with Syphilis.*
11. Hertz, R. *Tuberculosis as a Cause of Hepatic Cirrhosis.*
12. Rost, F. *Edema of the Lower Esophagus Following Vomiting.*
13. Boss, S. *Hexal, a New Sedative Bladder Antiseptic.*
14. Dolger, R. *Bilateral, Complete, Hysterical Deafness.*
15. Axmann. *Treatment of Psoriasis with Cold Applications.*
16. Schmidt, A., and David, O. *Acidosis.*

No. 37. September 12, 1912.

1. *Meyers, E. *The Treatment of Sleeplessness.*
2. Borchardt. *The Role of the Sound and Diseased Kidney in the Excretion of Salt.*
3. Adamkiewicz, A. *The "Reaction of Degeneration" of the Heart Muscle.*
4. Fries, H. *Treatment of Inertia Uteri; the Use of Hypophysis Extract.*
5. Aronson, H., and Sommerfeld, P. *The Toxicity of the Urine in Measles and Other Infectious Diseases.*
6. Peiser, J. *Condensed Milk from Wet Nurses as an Infant Food.*
7. Böttcher, W. *Treatment of Roentgen Carcinoma with Fibrolysin.*
8. Böcker, W. *Increased Growth of the Fibula Due to Defective Tibia.*
9. Sormani, B. P. *The Significance of Paradoxic Sera in the Wassermann Reaction.*
10. Dutoit, A. *Tuberculosis in the Etiology of Ocular Disease.*

1. The author briefly discusses normal sleep and states that it may be divided into two types, "evening sleep" and "morning sleep," according to the time of deepest repose. Adults are usually morning sleepers, healthy children evening sleepers. Lack of sleep during one or the other of these periods should not be regarded as insomnia though it is often so-called by the patient.

Simple sleeplessness is rare, the complaint usually being a symptom of disease. The exceptions to this rule are insomnia following long after influenza and that associated with periodic psychic disturbances.

Sleeplessness in children is usually due to a nervous constitution added to which are either improper conditions for inducing slumber or accidental disturbance of the sleeper. Over-fatigue and intestinal parasites are occasional causes.

The treatment consists in building up the nervous system and in regulation of the patient's life, a measure in which the parents must give co-operation. Hypnotics should be given only as a last resort.

Insomnia in adults is often associated with diseases of the heart, lungs and skin. Painful nervous diseases, of which the rarer are tabes cerebro-spinal lues and brain tumors, often cause sleeplessness as an initial symptom. Particularly in paralytics and in cerebral syphilis and arterial sclerosis is the insomnia apt to appear early.

A second group of insomnias are those associated with toxicoses: alcoholism, morphinism and the abuse of tea, coffee and tobacco.

The most stubborn and protracted cases are in the author's experience due to psychoses, while the commonest in general practice are those accompanying functional neuroses.

The great principle of treatment is the identification and correction of the morbid background upon which the insomnia depends. As specific measures, the proper arrangement of the bed-room to blot out the sleep destroying suggestions of the day's routine is important.

Baths, hypnosis and electricity are all mentioned before drugs. In the use of the latter the author gives the following suggestions:

1. Begin with the simplest preparations.
2. Vary the drug. One preparation one day, another the next, are more effective than the same drug repeated daily.
3. Combinations of two drugs are often more efficacious than one alone.
4. Give the drug in divided doses, not the entire dose at one time. [C. H. L., Jr.]

No. 38. September 19, 1912.

1. Westphal, A. *The Pathology of the Pupil.*
2. Pal, J. *The Effect of Caffeine on the Bronchi and Respiration, a Study in Experimental Bronchospasm.*
3. Schwarz, G., and Zehner, L. *A Biochemical Reaction with Thorium X.*
4. Pinkus, A. *The Treatment of Inoperable Carcinoma with Mesothorium and Similar Methods.*
5. Fürstenberg, A., and Schemel, K. *The Influence of Diathermia on the Body and Tissue Temperatures.*
6. Ascoli, M. *Artificial Pneumothorax by Forlanini's Method.*
7. Reentjerna, J. *The Possibility of Cultivating the Bacillus of Leprosy and of Infecting Apes.*
8. Rosenow, G. *Myoma of the Digestive Tract, Its Differential Diagnosis from Ulcer.*
9. Albu. *Colitis Ulcerosa Acuta.*
10. Junghanns, P. A. *Substitute for Protargol.*
11. Weiss, O. *A New Method of Treating Asthma.*
12. Wolff, J. *Zeller's Method of Treating Cancer.*
13. Brose, P. *The Treatment of Ruptured Extrauterine-Pregnancy with Hemorrhage.*

No. 39. September 26, 1912.

1. Wittmaack. *Prognosis and Treatment of Tinnitus Aurium.*
2. Abelin. *The Effect of Mercurials on Spirochetal Infections.*
3. Scheller, R. *Critical Studies on Hemoglobinophilic Bacteria.*
4. Messerschmidt, T. *The Occurrence of Dysentery Bacilli Outside the Body.*
5. Siege, M. *Clinical Experiences with Neuronal.*
6. Nagelschmidt. *Thorium Treatment of Leukemia.*
7. Levinsohn, G. *Operations for Cataracts.*
8. Popoff, M. *The Hemolysis Inhibiting Phenomena of Luctic Sera, and the Possibility of Their Exhaustion in the Serodiognosis of Syphilis.*
9. Rosenstern, I. *Hunger in Sucklings, and the Technic of Feeding.*
10. Lubinisky, M. *A Modified Electric Ear-trumpet*
11. Steffens, P. *"Aniontherapy."*
12. Schellenberg. *Rapid X-ray Examination of the Chest.*

Münchener Medizinische Wochenschrift.

August 27, 1912.

1. *Weichardt, W., and Kelber, C. *Examination of Air.*
2. *Petry, E. *Chemistry of Cell-granules; the Esinophilic Substance.*
3. *Pfeiffer, R., and Bessau, G. *Fundamentals of a Serum-treatment for Typhoid.*
4. Zoepfritz, B. *Iodine-control of Human Ovaries.*

5. EISLER, F. *The Interlobar Pleural Covering of the Lung in the X-ray Picture.*
6. MOLDOVAN, J. *Results of the Use of Salvarsan in the Austro-Hungarian Army.*
7. BECK, O. *Otological Indications and Contra-indications to the Use of Salvarsan in Syphilis.*
8. HAUPTMANN, A. *Luminal in Epilepsy.*
9. VÖRNER. *Sulphurization and Thiolin.*
10. KRÜGER, R. *Colloidal Arsenical Iron-ore as a Substitute for Bismuth in Rontgenology.*
11. VEICL, F. *Serum-therapy of Dermatoses of Pregnancy.*
12. WOLFF, F. *Extirpation of the Spleen.*
13. BRAUN, E. *Repeated Occurrence of Family Pseudo-leukemia and Sarcoma with Tuberculous Diathesis.*
14. ZELLER, A. *Treatment and Cure of Cancer by Internal Medication.*

1. The apparatus described has been used with apparent success to estimate accurately the degree of contamination of the air of rooms through human occupation. Instead of measuring CO_2 it responds to decomposition products of albumen, which are injurious, whereas CO_2 is relatively harmless. The purpose is to provide and improve means of studying the problems of ventilation. The air in testing is filtered through cotton and pumped through an indicator containing a mixture of colloidal osmium and glycerine. The resulting reaction is modified when decomposition products of albumen are present and the result can be demonstrated by means of iodide of potash, starch and turpentine-water.

2. Petry brings forward interesting facts about the eosinophile granules of white blood-corpuscles. He thinks they undoubtedly play a part in iron-metabolism.

3. The writers discuss the subject of serum-treatment of typhoid in the light of published results, but arrive at no definite conclusions as to its value.

[G. C. S.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No 30. JULY 22, 1912.

1. *NEUBORG, C., CASPARI, W., AND LÖHE, H. *Researches Concerning the Treatment of Cancer Infected Animals by Means of Metals.*
2. FALTA, W. *Congenital Hyploplasia and Multiple Sclerosis of the Ductless Glands.*
3. SACHS, F. *The Question of the Keeping Quality of Scopolamin Solutions.*
4. EHRMANN, R. *The Percussion of Organs and of Neoplasms of the Abdominal Cavity.*
5. EINHORN, M. *Experiences with Duodenal Alimentation.*
6. LIEPMANN... *Increasing the Secretion of Milk by Increasing the Albumin of the Food.*
7. SCHWARTZ, G. *A Warning and an Explanation in the Use of Barium Sulphate.*
8. BACHEM, C. *New Remedies.*
9. ERLANGER, G. *New Theories as to Glaucoma, and a New Operation for Glaucoma.*
10. SCHENZKA, A. *A Modified Goldschmidt Instrument for the Examination and Treatment of the Anterior Urethra.*

1. The authors, using combinations of copper, zinc, platinum, cobalt and silver, treated various forms of mouse tumors, both spontaneous and artificial. The tumors softened and became necrotic, without affecting the animals to any untoward extent, and no trace of tumor cells could be found after the treatment had been kept up for a period of time. The authors give a complete list of the metals used and the dosage per gram of body weight of the mouse.

[J. B. S., JR.]

No. 31. JULY 29, 1912.

1. BRIEGER, L., AND KRAUSE, M. *Chemo-therapy in Trypanosome Infections.*
2. PRINGSHEIM, H. *Mutation and Adaptation of Micro-Organisms.*
3. FRÖSH, H. *The Mechanism of Anaphylatoxin Formation by Bacteria.*
4. LUDWIG, E. *An Anatomic Study of the Depressor Nerve in Hypertrophy of the Heart.*
5. MEYER, O., AND MEYER, K. *The Etiology of Malignant Granuloma.*
6. GUTMANN, C. *Neolsalvarsan.*
7. NORDMANN, O. *Clinical Experiences During the Last Severe Diphtheria Epidemic.*
8. RUNGE, E. *The Technic of the Roentgen Ray in the Gynecological Region.*
9. FALTA, W. *Congenital Hypoplasia and Multiple Sclerosis of the Ductless Glands.* (Concluded.)

No. 32. AUGUST 5, 1912.

1. BLUMENTHAL, F. *The Treatment of Bacterial Infections in the Organism by Means of Chemicals.*
2. *BLEICHRÖDER, F. *Intraarterial Therapy.* MEYER, E., AND LOB, W. *Remarks on Intra-arterial Therapy.*
3. BERNHARDT, M. *The Etiology and Treatment of Tabes Dorsalis.*
4. SPIER, J. *A Simple Method for the Determination of the Boundaries of the Heart by Means of the Roentgen Ray.*
5. ROSENBURG, E. *Oxaluria.*
6. *FRIEDRICH. *A Simple Method for the Determination of Free HCL in the Stomach Contents without the Use of the Tube.*
7. CARO, L. *Blood Findings in Diabetes Mellitus.*
8. FLURY. *The Pharmacology of Cascara Sagrada.*
9. MENDELSOHN, L. *Experiences with Filmaron as a Cure for Tape-worm.*
10. FINKELSTEIN, S. *Experimental Syphilis in the Guinea Pig.*
11. v. TOBOLD. *New Instruments.*
12. BAETZNER, W. *Functional Kidney Diagnosis.*
13. SENATOR, M. *The Rest Cure at Sea.*

2. By means of a ureteral catheter passed into the femoral artery the author has injected collargol directly into the blood stream in four very severe cases of puerperal infection. The results were not particularly encouraging as the recovery of only one of the cases could be attributed to this treatment. There were, however, no untoward effects as a result of the injection. Experimentally he has injected various substances into the blood stream of dogs, and into himself, by means of catheters passed up the veins of both the arm and the leg. He believes that the method may be of value in some cases.

6. By means of threads stained with congo red and attached to small capsules the author is able to determine the presence or absence of free HCL in the stomach and to estimate the amount. The capsule and thread are given the patient to swallow twenty minutes after a test breakfast, and withdrawn half an hour later. He estimates the amount of free HCL by the coloration of the thread, and control tests have enabled him to become very accurate.

[J. B. S., JR.]

No. 33. AUGUST 12, 1912.

1. *SOBENHEIM, G. *Bacillus Carriers.*
2. NOGUCHI, H. *The Cultivation of the Spirochete Pallida.*
3. TOMASCZEWSKI. *Pure Cultures of the Spirochete Pallida.*
4. TAGLE, E. P. *Tissue Changes Produced with Radiothorium.*
5. TAGLE, E. P. *Tissue Changes after the Subcutaneous Use of the Lead Salts and Radium Lead Compounds. Degeneration Produced by Radium Emanation.*
6. REGENSBURGER, F. *Thyroid Tumor Metastasis into Bone.*
7. JOACHIMSTHAL. *Dislocations Occurring in Syringomyelia.*

8. *Tornai, J. *Phonoscopic Percussion, a New Method of Examination.*
9. Knopf, H. E. *Asthma in Children and Its Treatment.*
10. Krenzfuchs, S. *The Technic of Roentgen-ray Examination of Duodenal Ulcer.*
11. Auer, J. *A Criterion of Anaphylaxis.*
12. Lieske, H. *The Action of the Physician in the Mirror of the Law.*

1. The article has nothing new to present on the subject of pathogenic bacilli being carried by normal individuals. It is interesting to note that in certain parts of Germany almost everyone examined showed themselves to be carriers of para-typhoid. This was comparatively rare around Berlin.

8. The author describes an instrument closely resembling a double stethoscope, which he wears bound to his head while he percusses, the bells of the stethoscope being directly over the percussing finger. [J. R. S., Jr.]

No. 34. August 19, 1912.

1. Brugsch, T. *Diagnosis, Cause and Treatment of Gout.*
2. Amsler, C. *Splanchnomegaly Occurring with Acromegaly.*
3. Adamiewiez, A. *Cell Growth.*
4. Sternberg, A. *Rational Chemo-therapy.*
5. Kausch, W. *Diarrhea Following the Use of Hormonal.*
6. Frankel, M. *Roentgen-ray Treatment in Gynecology.*
7. Feilchenfeld, L. *Skin Irritants in Varicella.*
8. Kunne, B. *Demonstrations in Treatment with Orthopedic Apparatus.*
9. Hoffman. *New Methods in the Treatment of Tropical Diseases.*
10. Runge. *Practical Notes in Obstetrics and Gynecology. Menstrual Disturbances and Their Treatment.*

No. 35. August 26, 1912.

1. Konig, H. *Menstrual Psychoses.*
2. Goldmann, A. *Suturing of the Abdominal Cavity after Simple Cholecystectomy.*
3. Rotter, J. *Remarks on the Criticism Which Herr Kehr Has Advanced Concerning the Method of Primary Suture of the Abdominal Cavity Following Simple Cholecystectomy.*
4. Hadda, S., and Rosenthal, F. *The Influence of the Hemolysins on the Cultivation of Living Tissue Outside of the Organism.*
5. Bonniger, M. *The Technic of Artificial Pneumothorax.*
6. Turro, R., and Alomar, J. *The Cultivation of the Tubercle Bacillus.*
7. Melchior, E. *Congenital Synostosis of the Forearm.*
8. Mayer, H. *Changes in the Human Serum Following the Injection of Neosalvarsan.*
9. *Skaller, M. *The Treatment of the Duodenum with Gases and Sprays.*
10. *Acquired Hyperesthesia of the Skin.*
11. Jensen, V. *A Modification of the Gram's Stain, with Especial Regard to the Diagnosis of Gonorrhea.*
12. Bickel, A., and King, J. H. *The Influence of Large Doses of Thorium-X on the Development of Plant Seed.*
13. Zweig, A. *Traumatic and Chemical Injuries to the Nervous System.*

9. By means of the duodenal sound which the author has described in an article reviewed in the Boston Medical and Surgical Journal (Ber. Klin. Woch., No. 19, 1911), he is now treating the duodenum with oxygen, carbonic acid and compressed air, and sprays of menthol, eucalyptus and glycerine. He believes that he can correct faults in the motor function of the duodenum and overcome chronic obstipation by means of the gases. He has observed that the use of oxygen greatly enhances the appetite. Treatment can be ambulatory, and he states that the patients suffer little or no inconvenience from the introduction of gases or the oils. He believes that there is a great future for the method. [J. B. S., Jr.]

Wiener Klinische Wochenschrift.

No. 40. October 3, 1912.

1. Hering, H. E. *Localization in the Heart.*
2. *Danielopolu, D. *Diagnosis of the Meningitides by the Sodium Taurocholate Reaction.*
3. Tornai, J. *Some Contributions to the Diagnosis of Diseases of the Circulation.*
4. Tsiminakis, C., and Zografides, A. *The Etiology and Treatment of Epilepsy.*
5. Bjalokur. *The Question of Fever in Late Stages of Syphilis.*
6. Purjesk, B., and Perl, O. *The Occurrence of Typhoid Bacilli in the Oral Cavity in Typhoid Patients.*

2. Danielopolu describes a specific reaction which he has obtained in cases of meningitis, and which consists in an exaltation of the inhibitory effect of the cerebrospinal fluid on the hemolytic property of sodium taurocholate. [R. M. G.]

Deutsche Zeitschrift für Chirurgie.

117 Band. 1-2 Heft.

1. *Lotheisen, G. *The Operative Treatment of Gastric Crises with Foerster's Technic.*
2. Ebner, A. *The Present Teaching in Connection with the Condition Known as "Slipping Hip-Joint."*
3. Citronblatt, A. *Perforated Ulcer of the Stomach and Duodenum.*
4. Eden, R. *Osteoarthritis Deformans of the Hip in Children.*
5. Fonio, A. *A New Method for the Counting of Blood-plates.*
6. Poh, W. *Statistical Enquiry into Primary Actinomycosis of the Stomach.*

1. The author believes that section of the posterior spinal nerve roots in the treatment of gastric crises is of value in those cases when there is a zone of hyperesthesia in the epigastrium or an exaggerated epigastric reflex. He reports 3 cases of his own and 39 cases collected from the literature, also 29 cases in which the operation was done for neuralgia. The ages of the patients ranged between 20 and 58 years. The 7th to the 9th dorsal nerves were resected the oftenest. The highest resection included the 5th dorsal nerve, and the lowest the 1st lumbar nerve. The total mortality of the 68 operations was 14.7%, but 3 of the patients were operated on twice, giving a total of 71 operations with 10 deaths; 2 of the patients died of meningitis, 1 of pneumonia, 3 of cystitis, 1 of reflex heart paralysis, 1 of shock, 1 of lung embolism. He describes the technic of the operation in detail, and believes that the operation is superior to the excision of the intercostal nerves proposed by von Franke, the sub-phrenic resection of the vagus by Exner, or the operation on the lateral columns by Schüller. The results were surprisingly good for the relief of pain. The author believes that the operation should be attempted even on those patients in whom the operative risk is great. [J. B. S., Jr.]

Archiv für Klinische Chirurgie.

Vol. 99. Part 1.

1. Axhausen, G. *The Histological Aspect of the Tranpslantation of Joints, and the Suitability for Transplantation of Joint and Epiphyseal Cartilages.*

2. v. HABERER, H. *Traumatic Cyst of the Ventricle, and the Covering of the Open Ventricle with Fascia.*
3. HENSCHEN, K. *Diagnosis and Operative Treatment of Traumatic Subdural Hemorrhage.*
4. *BERESNEGOWSKY, N. *Intravenous Ether Narcosis.*
5. *GULEKE. *The Diagnosis and Treatment of Chronic Pancreatitis.*
6. FRANKE, C., AND POSNER, H. L. *Local Anesthesia in the Pelvis.*
7. KÖNIG, R. *Ethylchloride Narcosis. A Pharmacological Study.*
8. AXHAUSEN, G. *The Incision in Operations on the Costal Cartilages.*
9. v. SAAR, G. F. *Reflexes of the Extremities of Pleural Origin. The So-Called "Traumatic Reflex Paralysis" and the "Pleural Reflex."*
10. WREDE, L. *Deposits of Calcium about the Shoulder-joint and Their Relation to Periarthritis Scapulo-humeralis.*
11. HESSE, E. *Foreign Bodies in the Lung and Pleural Cavity Following Stabbing and Impaling Injuries.*
12. KOCHER, T. *The Blood-picture in Cachexia Thyreopriva.*

4. Beresnegowsky considers the historical side of intravenous narcosis and relates his own experience with dogs and men. He used the Schmitz-Pfeifer method; into one of the veins in front of the elbow a needle or canula is inserted and salt solution containing ether is allowed to flow in, this ether stream being alternated with a small stream of salt solution without ether. Beresnegowsky used Ringer's solution instead of normal saline, at 28° C; 3% ether in saline caused intense excitement but no narcosis; 4% ether, even when 2000 ccm. were used, was not strong enough to give good anesthesia. Five per cent. ether, however, especially when its use was preceded by morphine or morphine-scopolomine, was satisfactory in most of his 8 cases. Ether was perceptible on the breath in from 40 to 60 seconds. There was vomiting in some cases, and the secretion of mucus was excessive, except when scopolomine was used. The pathological results are bronchitis and venous thrombosis, from which emboli may be given off. A 5% solution causes no more changes in the parenchymatous organs than does etherization by inhalation. A stronger solution, however, is likely to cause hemoglobinuria and renal damage. The method is indicated in operations upon head and neck, and in weak, anemic persons.

5. In the diagnosis of chronic pancreatitis Guleke considers important the local pains situated deep in the epigastrium and radiating to back and left scapula, and also those pains of a peculiar character, called "coeliacal neuralgia." Deep palpation elicits tenderness, and the fixity of this tender spot during movements of the stomach (as shown by bismuth x-ray) is pathognomonic. Other signs are those due to pressure upon neighboring organs, such as the bile ducts and the duodenum, and those due to disturbed metabolism, as fatty stools and alimentary glycosuria. The Cammidge test he considers of no value.

Inasmuch as the diagnosis is made only after definite changes have taken place in the gland medical treatment is of little avail. Surgical treatment consists in exploration, correction of any causal condition, such as gall stones, and in some cases, of splitting the pancreatic capsule. Guleke does not believe in drainage of the Duct of Wirsung or in partial removal of the pancreas. He cites 8 cases, in 5 of which the diagnosis was made correctly before operation. [G. C. S.]

VOL. 99. PART 2.

13. *HINZ, R. *Primary Cancer of the Small Intestine.*
14. *LEUNENBERGER, S. G. *Further Observations on the Sarcomatous Degeneration of Bladder Papillomata.*
15. KRAUSE, F. *Free Exposure of the Ventricles of the Brain, Especially of the Fourth.*
16. STUCKEY, L. *Implantation of the Omentum as a Means of Checking Hemorrhage in Cholecystectomy.*
17. LINDENBERG, H. *Operative Treatment of Ulcerative Colitis.*
18. KOCHER, A. *Ulcus Ventriculi and Gastro-enterostomy.*
19. *BLAD, A. *Chronic Ulcer of the Duodenum and Its Sugrical Treatment.*
20. BUSCHMAKIN, N. D. *Changes in Position of the Popliteal Artery in Flexion and Extension of the Thigh, with Remarks on the Etiology of Aneurysm of This Artery.*
21. WENDEL, W. *Circumscribed Cerebral Meningitis.*
22. v. FINK, F. *Experiences with the Surgical Treatment of Gastric Ulcer.*
23. ZONDEK, M. *The Theory of Increased Intrarenal Pressure and the Surgical Treatment of Nephritis.*
24. AXHAUSEN, G. *Single, Aseptic Joint and Cartilage Necrosis, Chondritis Dissecans and Arthritis Deformans.*
25. VECCHI, A. *Recurrent Malignant Chordoma of the Sacro-coccygeal Region.*
26. WALJASCHKO, G. A. *Radical Cure of Umbilical Hernia and Hernia in the Linea Alba.*

13. Hinz has collected 52 cases of cancer of the small intestine from the literature and from his own experience, and analyzes them as regards etiology, pathology, symptomatology, situation, operative procedure and later course. The prognosis when a radical operation can be done seems fairly good; 6 out of 16 upon whom complete removal was done appear to be cured. Hinz favors the one-stage operation and the side-to-side method of anastomosis.

14. Leunenberger discusses the theory of the change of papilloma into sarcoma, then into carcinoma. He cites several cases from which, at consecutive operations, bladder tumors showing such a metamorphosis were removed. In support of this theory he points to the sarcomatous form which is assumed by cancerous growths when transplanted into dogs and rats.

19. Blad summarizes his discussion of chronic duodenal ulcer as follows: The disease is frequent. Bleeding is often a very early symptom, and the stools in suspected cases should be carefully examined for occult blood. There is frequently some relation between attacks of pain and the bleeding. It is exceptional to find no objective symptoms, but absence of these should not prevent exploration. The symptoms are right sided tenderness, retention and hypersecretion, though hypoacidity may exist. Retention may be from organic stenosis or from pylorospasm. Complications in the biliary system or the pancreas may mislead the observer. At operation examination of the exterior of the duodenum may not be sufficient, and one must remember that, even after gastro-enterostomy, food may pass the pylorus. [G. G. S.]

ZEITSCHRIFT FÜR KLINISCHE MEDICIN.

BAND 75. HEFT 1 AND 2.

1. GOLDSCHEIDER. *Cutaneous Sensibility.*
2. *STAEHELIN, R. AND SCHUETZE. *Spirographic Tracings in Health, Emphysema and Asthma.*
3. RUBOW, V., AND SONNE, C. *Influence of Erythema from Light Baths on Respiration in Heart Disease.*
4. *ELISCHER, J. *Lightning X-ray Pictures of Healthy and Diseased Hearts in Different Phases of the Cardiac Cycle.*
5. TOBIESON, FR. *A Case of Sarcoma of the Pericardium.*
6. LINDEMANN, A. *Diagnostic Significance of Diastase in Urine and Feces.*
7. EISELT, R. *Chemistry of Tubercular Sputum.*
8. *ROMBERG, AND MUELLER, O. *Functional Tests of Sound and Diseased Arteries by the Plethysmographic Method.*

9. Pezzi, C. *Origin of Heart Sounds.*
10. *Aron, E. *Hemoglobin and Oxygen Capacity of Blood During Changes in the Pneumatic Cabinet.*
11. Vannini, G. *Icterus and Metabolism.*
12. Maixner, E. *Endocarditis Maligna Ulcerosa.*

2. Records are presented of the amount of inspired and expired air, in health, emphysema and bronchial asthma. In both of the latter conditions the amount of air entering the lungs was found to be greater for each respiratory act, and as these were increased in number the amount of air respired by such an individual was greatly in excess of the normal. Several asthmatics studied during and between attacks showed this same increase in respired air during the asthmatic period. Also these authors find that the expiratory period in asthma and emphysema is relatively less than in health.

Pneumographic tracings from chest and abdomen are also given in relation to the spirographic.

4. Ellscher has devised a method of studying the heart's activity by taking a series of x-ray plates with rapid exposure (1-50 sec.) at known times in the cardiac cycle. By superimposing the outlines of the shadows thus obtained and studying them in conjunction with synchronous pulse tracings he hopes to obtain further information of cardiodynamics.

8. Romberg and Mueller emphasize the value of their plethysmographic method for testing vascular function (the arm is placed in a plethysmographic chamber and ice is applied to the arm above it, causing a change in the amount of blood going to the arm, small variations in which are detectable by the instrument). They insist that for estimation of vascular function the method is the best we have, but warn us not to attempt pathological diagnoses from its use. For example, a man with marked arteriosclerosis will usually show very slight diminution in the amount of blood delivered to the arm after ice application, but this diagnosis cannot be certainly made, as paralyzed nerve supply will produce the same result. The authors criticize severely the manner of use of their method by those who find inconsistent readings.

10. Aron tested men and animals at rest in the pneumatic cabinet. He finds that compressed air increases hemoglobin and oxygen content of peripheral blood, and that rarefied air diminishes the quantity of these two substances. [J. B. A.]

Revue de Médicine.

September, 1912.

1. *Robin, Fiessinger and Weil. *Delayed Hemorrhagic Syndrome in Typhoid Fever.*
2. *Carrien and Anglada. *Septicemia Due to the Pneumo-bacillus of Friedländer.*
3. *Janowsky. *The Practical Value of the Clinical Means of Examination of Exudates and Transudates.*
4. Savy and Gardère. *Acute Endocarditis in the Course of Typhoid Fever.*
5. *Thaon. *Serious Anaphylaxis of Abnormal Form.*

1. The author describes a transient hemorrhagic tendency following typhoid fever. This is characterized by petechiae, epistaxis, hematuria, buccal and intestinal hemorrhages. The duration of this affection is short and is accompanied by fever and followed by prostration and anemia. The authors believe the condition due to a diminution in the density of the blood, resulting from the acute febrile disease.

2. In the case noted bacillus of Friedländer was isolated from the sputum, blood and cerebro-spinal fluid.

3. Janowsky considers with care the relative value of the different means of examination of body fluids. They are stated briefly as follows: the specific gravity, the albumin, the method of Rivalta, the viscosity, the coagulability, and the cytodiagnosis. Each figure is subject to change, but as a rule the picture formed from a union of all these steps is more than likely to be correct. In a word, should the specific gravity be high, the albumins high, Rivalta reaction positive, the viscosity high, the coagulability relatively low and the cells showing a preponderance of leucocytes and lymphocytes the most likely diagnosis is an exudate. Although all signs fail in certain instances, Janowsky has shown that a combination of these tests will show correct conclusions in a vast majority of cases.

5. Thaon relates serious delayed anaphylactic shock following a second injection of anti-tetanic serum. Successive crops of urticarial wheals appeared on the body, to be followed by serious attacks one and three weeks later, which corresponded in detail to anaphylactic shock. [L. H. S.]

Miscellany.

MULTIPLE INTESTINAL PARASITIC INFECTION.

In the issue of *Science* for Oct. 18, Dr. William A. Riley reports an unusual case of "Concurrent Infection by Five Species of Intestinal Worms, Including Schistosoma Mausoni."

"The patient, who was a young man twenty-five years of age, had been in this country for five years, except for three brief visits home. The fresh blood was carefully examined and smears to be stained were made, but on account of the well-known periodicity in the appearance of filariæ in the peripheral circulation, the patient was requested to return at night.

"In the meantime, the blood smears were stained with the Nocht-Jenner-Hastings stain and examined for possible malarial parasites. None were found, but there was a marked eosinophilia (20%), such as is often due to infection by parasitic worms.

"When the patient returned, a search for blood filariæ was made, with negative results. On account of the eosinophilia, a sample of the feces was then examined microscopically. In this were soon found the large, characteristic eggs of *Schistosoma*, a very few of *Ascaris lumbricoides*, and many larvæ of *Strongyloides stercoralis*, the Cochin China diarrhea worm.

"When the result of the examination was reported to the physician in charge of the case, the usual treatment with purgatives and anthelminthics was adopted. Unfortunately, the patient made no effort to save the specimens dislodged, except that a sample, taken some hours after the treatment, was sent me. In this sample the three species above mentioned were present, the number of larvæ of *Strongyloides stercoralis* being much larger than in the first sample. In addition, there were found a small number of the eggs of the hookworm, *Necator americanus*, and of the whipworm, *Trichuris trichiura*. I afterwards learned that following the medical treatment, a full-sized *Ascaris* had been voided.

"Thus this patient harbored five distinct species of parasitic worms, differing from the two cases reported by the Porto Rico Anemia Commission by the presence of the larvæ of *Strongy-*

loides stercoralis. Excepting those of *Schistosoma*, the eggs of the various parasites were but few in number.

"The many eggs of *Echistosoma* were all lateral-spined. In view of the discussion as to whether this type of eggs is from a species distinct from *Schistosoma haematobium*, a careful examination of the urine was made. No eggs or traces of them were found, although it is here that the typical, terminal-spined eggs of *Schistosoma haematobium* are most readily demonstrated. Neither was there any history of bloody urine, or evidence of blood corpuscles in the fluid—symptoms commonly associated with the presence of the ova of *Schistosoma haematobium* in the urinogenital system. This is in agreement with the evidence recently brought forward by Sambon, Holcomb and others to show that the West Indian and South American schistosomiasis is due to a distinct species, which also sometimes occurs in association with the better-known species in Africa. To this species with lateral-spined eggs, Sambon, '07, gives the name *Schistosoma mansoni*.

"The few records of the occurrence of *Schistosoma* in the United States are all, like the above, of imported cases. Most of them are recorded from transient visitors, or from soldiers returning from South Africa, and refer to infection by *Schistosoma haematobium*, terminal-spined eggs having been found in the urine."

Instances of multiple intestinal parasitic infection are not uncommon. The Porto Rico Anemia Commission has reported not a few triple, and two quadruple, infections. Several quadruple infections have been recorded also by de Silva from Bahia in Brazil. Dr. Riley's quintuple case is not only remarkable for the rarity of the blood-fluke in the United States, but seems, so far as available literature is concerned, numerically unique.

A FRENCH HOSPITAL SHIP.

THE following item from a recent issue of *The Scientific American* seems to deserve quotation on account of the contemplated equipment of a similar hospital ship from the United States for service on the Grand Banks.

"A recent consular report describes the remarkable work of the French hospital ship, *Saint François d'Assise*, one of two vessels maintained by the Société des Centres de Mer to minister to the wants of fishermen of the North Atlantic. The vessel in question cruises on the Newfoundland Banks, while her sister ship plies the Iceland fishing grounds and the North Sea. The hospital ship leaves France each spring and follows the French fishermen to the Banks. It carries a crew of twenty-seven men, including a chaplain and a doctor, and has beds for thirty-six patients, besides accommodations for shipwrecked sailors and patients suffering with minor ailments. During the summer it speaks each fishing vessel on the Banks, without regard to nationality, to ascertain whether its services are needed. Sick or injured fishermen are given treatment, and when the cases are sufficiently serious are kept on board. From time to time the ship puts into St. Pierre to transfer patients to the French hospital at that place. During the year 1911 the ship steamed 12,209 marine miles, spoke 1143 vessels, admitted 70 patients to the hospital and gave treatment at sea in 420 other cases; besides picking up 14 shipwrecked sailors. The vessel also acts as a floating post office, under the authority of the French Government, distributing and collecting mail on the fishing grounds. No charge is made for medical treatment of for medicines. Besides its two ships the society maintains two sailors' homes, one at St. Pierre and one at Feskrudsfjord, Iceland. It has a small subsidy from the French Government, but is mainly dependent upon private subscriptions from year to year."

TREATMENT OF RABIES IN PRUSSIA.

IN the issue of the *British Medical Journal* for Oct. 12, it is stated that:

"The number of persons bitten by animals, either rabid or under strong suspicion of being so, in Prussia during the year 1911 was 231, as against 247 in 1910. Of that number 225 were inoculated—some in the Koch Institute, Berlin, and others at the Breslau University Institute of Hygiene. One patient died before the course of treatment could be completed, another from sepsis following an abscess which developed at the site of the bite. Of the total number of persons bitten by animals certainly suffering from rabies, who were treated from 1906 to 1911, 18 died, a mortality of 1.49%."

These figures should be of impressive interest to anti-vivisectionists and others who declare that the serum treatment of rabies is not only useless but criminal.

THE PRODUCTION OF ARTIFICIAL CELLS.

IN the issue of *Science* for Oct. 25, E. Newton Harvey, of the Marine Biologic Laboratory, Woods Hole, Mass., describes "a simple method of making artificial cells," by shaking a chloroform solution of lecithin with a proteid solution. This results in the production of lecithin droplets in water surrounded by a fine proteid membrane. In each of these droplets there forms an eccentric granular knot, resembling a karyosome. These artificial, cell-like bodies closely resemble sea-urchin eggs in appearance and in many of their physical and chemical properties. Particular interest attaches to these phenomena, in view of recent discussion about the artificial, synthetic production of living matter. The subject will receive further experimental observation at Woods Hole.

Correspondence.

DR. GEORGE FAULKNER OF JAMAICA PLAIN.

BOSTON, OCT. 10, 1912.

Mr. Editor:—A little more than a year ago there died in Jamaica Plain at the age of 92 an old-time physician of much local celebrity and peculiarly interesting personality, Dr. George Faulkner, surviving founder of the Faulkner Hospital. It was my good fortune to know Dr. Faulkner intimately for many years and I have been hoping that some one of his professional brethren would pay tribute in your columns to his strong and original personality. Inasmuch as no one has as yet done so I may venture to send to a journal which he always read and highly valued a few reminiscences drawn in part from a fuller account of his life prepared for the Annual Report of the Faulkner Hospital for 1911.

Dr. Faulkner was born in Billerica, Massachusetts, July 14, 1819, and died at his home, 29 Greenough Avenue, Jamaica Plain, on August 27, 1911. The boy George attended the public schools and Westford Academy, and in 1835 went to work in a store in Boston, intending to become a merchant, but after three years returned home, finding mercantile life distasteful. Entering Harvard in 1840 he was graduated in the class of 1844, having in the meantime taught school in the winter vacations. On leaving college he began to study medicine in the office of Dr. Twitchell, the famous physician of Keene, N. H., and in 1847 obtained the degree of Doctor of Medicine at the Harvard Medical School where he had spent two years. He had a valuable hospital experience to which, during his later years, he often referred, in one of the city institutions on Rainsford Island, where he saw a great variety of cases, including small pox, often of the worst type, and the now rare disease, typhus. Here he was so impressed with certain remediable abuses of administration that he wrote to one of the leading newspapers an anonymous letter drawing public attention to the need of reform, whereupon he soon had the amusement as well as the satisfaction of witnessing the mystification and discomfiture of his superiors at the revelations which he himself had made. This may well have been his first effective expression of that indignation towards civic wrong-doing, that eagerness for the improvement of the world, that sympathy with the poor and the unfortunate which were some of the chief characteristics of his riper years.

We next find him associated with an older physician, Dr. Luther M. Harris of the old town of West Roxbury, residing in that part of it now known as Jamaica Plain, and when, not long after, Dr. Harris died, Dr. Faulkner succeeded to his practice. For thirty-two consecutive years he practised medicine in Jamaica Plain, and in his later years he was often heard to say, "No man ever had finer people to care for. Most of them were so intelligent that if I told them I didn't know what ailed them they didn't dismiss me; and even if I told them they didn't need any medicine they still wanted me to keep coming."

Of medium height, sparely built, erect in form, inquisitive, eager and earnest in gaze, quick of apprehension and of speech, hearty in laughter, yet often whimsical and always independent and original, Dr. Faulkner went his way in and out among his people, alert and sympathetic and a little aloof, not always understood, but always respected and always beloved. He was a life-long admirer of his first professional teacher, Dr. Twitchell, and an ardent disciple—almost a worshipper—of Dr. Jacob Bigelow, whose famous essay on "Self Limited Diseases," published in 1835, was the corner stone upon which Dr. Faulkner built the whole edifice of his own theory and practice. An inevitable corollary of Dr. Bigelow's great essay was the comparative uselessness of drugs (especially in such diseases as the fevers) and Dr. Faulkner—who never hesitated, as so many do, to accept the consequences of his theories—became from the outset of his practice a physician who "drugged" but little, thereby differing widely from many of his contemporaries. In his old age nothing gave him greater satisfaction than the general recognition and acceptance by the profession of the same point of view which he had adopted years before as a young man and in the face of much hostile criticism. His own simple theory of medical practice reduced to its lowest terms and often reiterated by him in conversation was, "Comfort, support and cheer your patient." And yet he was no nihilist in medicine. He always spoke gratefully of drugs—"about a half a dozen or so." It was simply that he believed on the one hand with all his heart in the great Hippocratic doctrine of the healing power of nature, and on the other in his own theory quoted above which involved the control of pain and the reinforcement of the weak or struggling body and soul. But above all, along with his professional advice and into his every prescription went some of his own cheerful patience and courage, some of his own fortifying common sense, which left the patient, not as sometimes happens when the doctor goes, sadder if no wiser, but "comforted, supported and cheered" by his manly courage and transparent honesty.

Sensible of his honorable ancestry and grateful for it, Dr. Faulkner was yet, both in theory and practice, a thorough-going democrat. The poor, the unfortunate, the weary, and the heavy-laden, never failed to enlist his sympathy or aid. He was theoretically opposed to power and privilege of every sort, but only if unjustly obtained or held or exercised. For he was no anarchist or socialist. He knew too well that physical and physiological features differentiate, and must forever separate, individuals and races. But all the more he held, for that very reason, that the strong must help to bear the burdens of the weak, and it was because of this among other things that a hospital appealed to him and to his wife and daughter as one of the finest forms of philanthropy. Hence, too, it was natural that when their only daughter died, Dr. and Mrs. Faulkner should have determined to devote all their resources to her memory in the establishment of a general hospital for the benefit "of the people of the old town of West Roxbury." For this purpose they themselves chose as a site the beautiful lot of land, adjoining and overlooking the Arnold Arboretum, upon which the Hospital now stands.

After Mrs. Faulkner's death on January 5, 1900, Dr. Faulkner made over to the hospital most of his own property, and it thereupon became possible to organize the corporation and begin construction. At Dr. Faulkner's death the trust established by Mrs. Faulkner's will was turned over to the Hospital, the sums thus given to the Hospital amounting to $237,817.89 from Mrs. Faulkner's estate and $248,021.30 from Dr. Faulkner's.

Dr. Faulkner was a great believer in the value of the outdoor life and of muscular exercise. He slept in a room with many windows all wide open, and more than once his faithful manservant Michael had to come in in the morning and shovel out snow which had drifted in during the night. At eighty he was walking every day and saying, "If I ever cease to walk, I shall not last long." Great therefore was his surprise to find that when he could no longer walk he still lived on and kept well—such is the wonderful power of adaptation of the human machine to changing conditions, and in his last days he used to say, "There is nothing the matter with me: the only trouble is that I am not good for anything. This old machine has run long enough: it is worn out."

At the age of 90 Dr. Faulkner seemed hale and vigorous, and at 91 hardly less so. But as 92 drew on he became gradually weaker, looking patiently, though rather wearily and a little wistfully, for the end. This came at last not, as he had hoped, by apoplexy, but as a flame when fuel fails burns low and flickers and goes out.

W. T. SEDGWICK.

AN OBSTETRIC PRODIGY.

Mr. Editor:—Some time ago, in inquiring into the family history of a patient, who seemed intelligent and fairly trustworthy and who had no motive for exaggerating that part of her story, I was told a story which several of my obstetrical friends have regarded as a record breaker. I suspect that they think me a fit candidate for the Ananias Club, but "I tell the tale as 'twas told to me." The patient said that she was the sixteenth child, born at the seventh and last confinement, the previous record having been three sets of triplets and three pairs of twins! The mother died of old age at ninety-eight, but "the blow almost killed father," who died of asthma at thirty-five.

Can any one beat this?

Yours very truly,

PHILIP COOMBS KNAPP, M.D.

Boston, October 20, 1912.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, OCT. 19, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	7	
Chicago	612	152	Waltham	10	3
Philadelphia	—	—	Brookline	4	—
St. Louis	—	—	Chicopee	5	3
Baltimore	—	—	Gloucester	7	1
Cleveland	—	—	Medford	4	—
Buffalo	—	—	North Adams	11	6
Pittsburgh	—	—	Northampton	7	0
Cincinnati	—	—	Beverly	4	1
Milwaukee	—	—	Revere	5	4
Washington	—	—	Leominster	4	—
Providence	—	—	Attleboro	9	2
Boston	202	56	Westfield	6	1
Worcester	28	8	Peabody	2	1
Fall River	31	14	Melrose	—	—
Lowell	38	11	Woburn	6	3
Cambridge	30	10	Newburyport	2	—
New Bedford	—	—	Gardner	1	1
Lynn	14	1	Marlboro	4	1
Springfield	20	7	Clinton	2	1
Lawrence	—	—	Milford	—	—
Somerville	19	4	Adams	4	1
Holyoke	19	12	Framingham	4	1
Brockton	5	1	Weymouth	—	—
Malden	10	3	Watertown	2	1
Haverhill	18	4	Southbridge	1	—
Salem	18	6	Plymouth	—	—
Newton	6	2	Webster	2	1
Fitchburg	11	4	Methuen	—	—
Taunton	16	5	Wakefield	—	—
Everett	4	0	Arlington	2	—
Quincy	—	—	Greenfield	6	1
Chelsea	12	3	Winthrop	6	2

NOTICES.

NEW YORK AND NEW ENGLAND ASSOCIATION OF RAILWAY SURGEONS.—The Twenty-second Annual Session will be held at Hotel Astor, New York City, Wednesday, November 13, 1912.

NEW ENGLAND PEDIATRIC SOCIETY.—The Twenty-second Meeting will be held at The Boston Medical Library at 8.15 p. m., on Saturday, November 2, 1912. The following papers will be read: "Neglected Lisping." Report of case and treatment. Dr. Walter B. Swift. "Infantile Malnutrition and Precipitated Casein," Dr. Charles Hunter Dunn. "A Case of Abnormal Physical and Sexual Development in an Infant of Two Years; Probably Due to a Tumor of the Pineal Gland," Dr. John Lovett Morse.

Light refreshments will be served after the meeting.

JAMES MARSH JACKSON, *President.*
FRITZ B. TALBOT, *Secretary.*

ANNOUNCEMENT.

NEW YORK SKIN AND CANCER HOSPITAL.—The Governors of the New York Skin and Cancer Hospital announce that Dr. L. Duncan Bulkley will give a fourteenth series of "Clinical Lectures on Diseases of the Skin," in the Out-patient Hall of the hospital, Wednesday afternoon, from October 30 to December 18, 1912, at 4.15 o'clock. The course will be free to the medical profession, on the presentation of their professional cards.

CHARLES C. MARSHALL,
Chairman of Executive Committee.

RECENT DEATHS.

DR. EDWARD BOND FOOTE, who died last week in New York City, was a graduate of the College of Physicians and Surgeons. He was much interested in humanitarian, philanthropic, and educational movements, and was the author of numerous works on these topics. He belonged to many charitable and scientific societies.

DR. HARRY FRYE HOLT, who died at Worcester, Mass., on Oct. 19, was born in 1877. He received the degree of M.D from the Harvard Medical School in 1906. He had made a specialty of ophthalmology, and was a Fellow of the The Massachusetts Medical Society.

DR. PAUL SEGOND, the eminent French surgeon, died of uremia at Paris on Oct. 27. He was professor of surgery in the medical faculty of the University of Paris, and surgeon-in-chief at the Solpetrière.

DR. WILLIAM F. DUDLEY, a prominent laryngologist of Brooklyn, N. Y., died on October 22, in the fifty-first year of his age. He was a native of Brooklyn, and a graduate of the Brooklyn Polytechnic Institute. He received the degree of M.D. from the Long Island College Hospital in 1886, and at the time of his death he was attending laryngologist to the Brooklyn and St. John's Hospitals, assistant laryngologist to the Long Island College Hospital, and consulting laryngologist to the Norwegian and Swedish Hospitals and St. Christopher's Hospital for Babies.

DR. JOSEPH J. JACHES, of Bath Beach, Borough of Brooklyn, N. Y., died on October 20, at the age of fifty-two years. He was a native of Russia, and was graduated from the University of Moscow in 1886. Dr. Jaches was visiting physician to the Jewish Maternity Hospital of Brooklyn.

DR. SYDNEY H. CARNEY, a retired physician, died at his home at Tompkinsville, Staten Island, N. Y., on October 22. Dr. Carney was a son of the late James G. and Clarissa Willett Carney of Boston, and was in the seventy sixth year of his age. He was a member of the Sons of the Revolution and the Society of Colonial Wars.

BOOKS AND PAMPHLETS RECEIVED.

Intestinal Stasis in Relation to Cancer Etiology and Prophylaxis, by William Seaman Bainbridge, Sc.D., M.D. Reprint.

The DeKeating-Hart Method of Fulguration and Thermo-Radiotherapy, by William Seaman Bainbridge, Sc.D., M.D. Reprint.

Epileptic Masks and the Differential Diagnosis of Epilepsy, by Wm. T. Shanahan, M.D. Reprint.

The Shattuck Lecture.

THE CLINICAL STUDY OF RESPIRATION.*

BY DAVID L. EDSALL, M.D., BOSTON.

In the past few years the study of particular functions and of their disturbances has become so conspicuous that in the most active fields of clinical research it has largely taken the place of the study of diseases as entities. In other words, we have come much more generally to recognize diseases, whether clearly organic or apparently functional, as made up of a group of disturbances of function, and have recognized that these disorders of functions must be clearly appreciated individually before we can comprehend any disease as a whole. It is through this change of conceptions that general physiology, physiological chemistry, the study of the normal reactions of immunity and similar questions have become so lively a part of clinical investigation. Not many years ago the physiologist was, so to speak, the mere acquaintance of the medical and surgical clinician, while the pathologist was his constant companion. Now in his daily work the physiologist is quite as important to him as the pathologist and in dealing with those conditions whose lesions are obscure or of quite uncertain character the physiologist is essential in gaining any further comprehension of whatever disease is under study, since, in such instances, we are limited in our investigation to the study of those disorders of function that are evident. Indeeed in nearly all conditions pathology itself now approaches physiology so closely that, at the present day, pathological investigation begins rather at the point where physiological processes become deranged than where disease terminates in death, as was earlier the more general custom. The vast importance from the practical standpoint of this change of conception depends, of course, upon the fact that almost all our methods of treatment, as well as diagnosis, really deal not with diseases as such but with the predominating disturbances of function that diseases produce. The influence of the newer point of view upon the methods of treatment may be illustrated by so familiar a disease as typhoid fever. When I studied medicine I was, essentially, taught certain routine methods of treating typhoid fever, which were varied in character somewhat according to the severity of the disease but were really directed chiefly against the disease as an entity. Now we are taught to treat the patient's powers of resistance, his excretion, his disturbances of circulation, digestion and metabolism but, as to the disease itself, only certain characters and accidents that are somewhat peculiar to this disease.

Through the physiological viewpoint the clinical study of disease has added to it a wealth of new methods for determining the exact character of changes in the pulse, the blood pressure, the functional capacity of the heart, the secretory and motor activities of the digestive organs, the functional capacity of the kidneys and a variety of other things, and as a consequence our methods of diagnosis and treatment have been altered and improved to a degree that is but vaguely comprehended by any of us unless we consider in detail the changes that have occurred in the last two or three decades. Some of these methods have become essential parts of careful routine study of individual patients. Some are too complex to be capable of serving widely as clinical aids, and are useful almost solely in research. The purpose of research is, however, twofold—the introduction of new individual methods and the development of new conceptions, and the greater of these is the latter. The strong tendency exhibited by all of us to judge of the usefulness of a piece of research by the readiness with which particular methods employed in it can be immediately introduced into the routine examination of patients is, of course, erroneous. The greatest service any methods render is not this, but the general enlightenment they bring to our conceptions of the diseases with which we are dealing. Many of these methods would not long be used in practice even if their technic were made suitable, not because the methods are valueless, but because when they have established new conceptions it is frequently easy to recognize clinically by simple methods what previously could not be comprehended by any methods.

Let us consider what has happened in regard to the study of respiration during the time that the study of the circulation, the renal function, the digestion, metabolism, the blood and many points in regard to the nervous system has been so actively followed, and has yielded so much of clinical value. It is a striking fact that the great function of respiration has received very little clinical study, excepting in direct relation to questions of metabolism and this work has been in large part physiological rather than directly clinical. We have increasingly exact means of diagnosing the actual lesions within the chest that may be associated with changes in respiration, and we have long recognized that certain pronounced changes in respiration occur in association with certain diseases, and that some of these changes are indicative of individual, more or less serious, conditions. But we have not in any striking way added much in recent years to our knowledge of the meaning or the importance of the abnormal forms of respiration seen in disease, and still less has been added to our means of relieving them. Contrary to our method of dealing with most other disturbances we still confine ourselves in our routine observations of the respiration of patients almost entirely to the extremely valuable,

* Delivered at the annual meeting of The Massachusetts Medical Society, June 11, 1912. Based upon the studies made in the Nutrition Laboratory of the Carnegie Institution of Washington, Boston, Mass.

but in some ways recognizedly insufficient and inexact, methods that have for the better part of a century been in use by careful observers, and even in precise and systematical clinical investigations much the same methods are employed.

Instruments have been devised for recording clinically, with greater precision and in greater detail than can be done by ordinary observation, the characters of the respiratory movements and changes produced in them by disease. These have some value, but all that have been employed have decided errors associated with their use, and the information that they yield is, in most instances, slight as compared with the labor spent in securing results, though the Marey instrument has recently been so simplified that it is now almost as easy to use as an ordinary sphygmograph. These instruments have had little vogue, though some interesting, and in part significant, facts have lately been pointed out as a consequence of their use by Hofbauer and others, and the recent interesting study of irregular forms of respiration, especially in their relation to meningitis, reported by Conner of New York, is of practical importance. But in using these instruments we are dealing with conditions quite comparable to those met in the use of a simple, old-fashioned sphygmograph. Both instruments are made on somewhat similar principles, their use involves some important errors that cannot be well controlled and the instruments yield data that control accurately, among a variety of variable factors, only the rate of the pulse or of the respiration, whichever we may be studying; to a much less accurate degree, and purely qualitatively, not quantitatively, the character of the various phases of the pulse or the respiration and their amplitude. The uses of such instruments are likely to be little wider than those of the simple sphygmograph. Various earlier attempts were made to employ them clinically, but they failed to lead to their extended use or to add any very broad facts. Recently interesting spirometric observations have been made by Bohr, Rubow and others that throw some light upon the character of the disturbances of respiration in emphysema, cardiac disorders and other conditions. Their studies will add further facts of value in all probability, but they of themselves also attack but one of a number of variable factors. There have also been important observations recently on the alterations in the composition of the alveoli air in a variety of conditions, and these will probably add valuable information, though exaggerated value has certainly been placed upon their diagnostic importance by some writers.

The point that I would emphasize is that in our daily clinical observations of respiration, while we recognize the relation of some abnormalities to certain disorders, we have extremely little knowledge of the efficiency of the various forms of respiration in accomplishing the great objects of this function, namely, to carry air to the pulmonary alveoli and out again, and thus to take in oxygen and to eliminate carbon dioxide, and we have had but limited knowledge of the reasons why one form of respiration is so frequently assumed under certain abnormal circumstances, other forms under other circumstances. In other words, we do not know the real causes of these abnormalities of respiration, and, until the causes are learned, it is impossible to determine their real significance. Until both cause and significance are known we cannot attempt to treat them intelligently. The truth and importance of this statement is reflected in the fact which I think all clinicians will admit, that except in a very limited number of types of conditions, chiefly essential asthma and those circulatory disorders that are capable of being much benefited, we can do very little to relieve respiratory distress, and even in the conditions mentioned our results are often highly unsatisfactory. No drugs are more sadly disappointing when we most desperately need them than those that are classed as respiratory stimulants. I shall come back to this point later, and indicate means by which I trust it will be possible to search at least for more accurate and more efficacious methods of treating some of these disturbances. I will at present go back to my statement that our usual methods of clinical study give us no accurate idea of the real extent of respiration in most cases, the real result, that is, that respiration is accomplishing. I think the tendency of most clinicians will be to doubt this statement at once, but if any one will, with a suitable instrument, measure the ventilation with different types of breathing, he will, I am sure, find, as I have, that it is frequently no easier by ordinary methods of observation to tell with any accuracy what one form of respiration accomplishes as compared with another, than it is to tell with approximate accuracy with one's finger what the blood pressure is, or by looking at a person, about what his blood count is, especially when we attempt to determine the real or alveolar ventilation, making allowance for the so-called "dead space" in the chest, a factor which it is important that clinicians should appreciate more thoroughly than we have done. This point, too, I shall take up more specifically later. Even when one makes observations on one's self, the confusion that arises from differing rate and differing amplitude of respiration, and from the varying sense of effort connected with respiration and from all sorts of combinations of these factors renders it impossible to judge with any accuracy what is being accomplished. In observations which I have made upon myself and other subjects, when I have thought from ordinary observation that more was being accomplished in one way than in another, or that the reverse of this was true, the records often showed the contrary, except, of course, in instances in which the difference was too gross and apparent to permit of mistake.

The frequency of minor or even marked alterations of respiration is appreciated only when attention is specially given to them. Irregularities of rhythm of varied kinds, alterations in rate and in amplitude, changes in the relation between costal and diaphragmatic breathing are all very frequent. Regarding even the most striking of them we know very little. What is accomplished by the slow, deep respiration frequently seen in cerebral, and some other disorders as compared with its opposite, the rapid, superficial breathing so common in severe pulmonary disease, in many infectious diseases, in bad cardiac cases and in other states, and why these have so strong a tendency to occur in some circumstances and not in others are questions that have been very imperfectly answered, indeed in many ways little touched upon. The reason that in one set of diseases and often in one group of normal persons the rate of respiration varies in relation to the amplitude in one way and in another group in the contrary way, a question recently studied from the physiologist's standpoint in an interesting manner by Hough, is in one sense almost the same question, but in another sense is rather a distinct question, and the answer to it is not clear in either case. The preponderance of costal breathing in one case and of diaphragmatic in another case is readily explained if abdominal inflammation, effusions, or growths, or certain diseases of the chest are present, but if they are not, its occurrence needs explanation. The prevailing idea that costal breathing predominates in woman by a provision of nature in preparation for pregnancy must, it seems from a variety of investigations, be largely relinquished for the much less mysterious view that it is a habit acquired through her long established custom of wearing constricting clothing. But if an habitually abnormal method of breathing can be established in this way without producing distress, it only argues that when it occurs without this cause there must be some other occasion for it. Possibly a strong hint as to the meaning of it in some cases can be seen in Lewis' apparent demonstration that costal and diaphragmatic breathing have the opposite effect upon blood pressure. He finds that costal inspiration, contrary to ordinary statements, lowers systemic blood pressure, while abdominal inspiration raises it. Lewis' observation that the so-called paradoxical pulse is in minor form entirely normal and not paradoxical at all appears to be correct, and is important as pointing out a widely prevalent error promulgated through earlier erroneous observations. The importance that too great a predominance of costal over diaphragmatic breathing may have is shown by Weckebach's striking studies of a series of cases which were chiefly simple splanchnoptosis. These exhibited such serious disturbances of the circulation that this able student of the circulation was led at first to consider that grave myocardial weakness was present, but the trouble proved to be due, apparently, solely to low position of the diaphragm and inability to exert an effective pumping action upon the blood in the abdominal vessels and viscera,—that pumping action which is so important a factor in the normal maintenance of the circulation.

Some of the disturbances of respiration mentioned, as well as others, occur frequently. We have, as I have said, learned that they are often associated with certain diseases, and in some instances really indicate somewhat the presence of certain definite lesions, but the actual reason for their occurrence is usually not clear.

Physiologists have done a very great deal of work in recent years upon respiration, and in certain ways this work has been of important significance to the clinician. I shall make no attempt to review the great numbers of facts that have accumulated, but there are a very few conspicuous points that I would refer to, in that they bear especially upon directly clinical questions, and in part upon observations of my own that I wish to discuss. In its breadth of clinical significance that work which has borne upon the manner in which the respiratory centre is excited is most important, especially since clinically we are too prone to think directly of mechanical conditions in the chest or changes in the circulation as producing alterations in respiration and too likely to think of them as acting through nervous impulses from the thorax. In diseases of the nervous system we often give consideration to influences exerted more directly upon the respiratory centre but we do this too little in other circumstances.

In normal circumstances respiration appears to be excited not by nervous impulses coming from the thorax or other distant sources, but by chemical means carried by the circulation or developing in the tissues about the centre itself. The conditions in disease are more complex and the character of the respiration is then often determined to a large extent directly by mechanical or circulatory changes within the chest. Nevertheless even in disease the dominant factor remains usually the chemical conditions surrounding the respiratory centre and a sharper appreciation of this fact will lead us to a better understanding of many respiratory abnormalities. It has long been known that, contrary to a widely prevailing impression, the CO_2 in the blood is quite as important as the oxygen in regulating respiration, but recently Haldane and his coworkers have made it appear very probable that the altogether predominating factor in exciting the respiratory centre in normal circumstances is CO_2—not its total quantity in the blood, but the quantity present in such form as to exert gaseous pressure, a very important distinction that is often overlooked in criticizing Haldane's work. They find that the tension of the CO_2 in the blood is kept under normal circumstances within extremely narrow limits. A very slight increase in it excites respiration. Increase tends, of course, to occur constantly

and this is normally met by regular respiratory activity. On the other hand, a fall to even slightly lower points is followed by cessation of respiration. These investigations have offered evidence from a variety of standpoints that CO_2 tension is normally the only stimulant to respiration, and that lack of oxygen becomes a stimulant only in a secondary way, and when very severe. Whether this is altogether true or not (which is not finally settled), their explanation of the pronouncedly periodic character of that striking phenomenon, Cheyne-Stokes respiration, is the only good one that has yet been offered, and is of great interest clinically, as it makes it easier to comprehend the fact that this form of breathing tends to occur especially in certain types of severe disease, but nevertheless is, in some degree, seen at times in a rather disconcerting way that is difficult to understand, in perfectly simple conditions, even, for instance, in normal sleep. Haldane and Douglas found, as was known long before, that if they breathed for a time very rapidly and deeply, there occurred pauses in breathing, owing to the fact that an excess of CO_2 had been pumped out by the forced breathing, and the CO_2 pressure in the blood had consequently fallen below the point where it excites the respiratory centre. If, after severe forced breathing, they breathed just as they desired pauses occurred and were followed by occasional rhythmic breathing which assumed a crescendo form, then by a fall, then another pause and then a repetition of the phenomenon; in other words, Cheyne-Stokes breathing. The conclusion they reached after various experiments was that Cheyne-Stokes breathing is in such experiments due primarily to the presence in the blood of too little CO_2 to excite the respiratory centre, or in disease usually to a reduced sensitiveness of the centre to CO_2, so that this substance accumulates without exciting the centre and hence the pauses in breathing occur. During these apneic pauses the oxygen in the blood decreases, and a point is reached where the great lack of oxygen whips the centre into action either directly or through consequent derangements of body chemistry (accumulation of lactic acid being suggested as the immediate excitant of the periodic breathing efforts), up to the point where sufficient oxygen has entered the circulation to permit the centre to lapse off again into quiet, when another pause follows, and then the phenomenon occurs over again. This makes readily comprehensible the occurrence of Cheyne-Stokes breathing in cerebral stupors and in stupefying toxemias which would have the effect of dulling the respiratory centre, and it would also render it easier to understand the occasional occurrence of typical or nearly typical breathing of this kind in sleep, and in other normal or nearly normal circumstances. It occurs in sleep chiefly, I think, when people are lying on their backs and this together with differences in the respiratory centre in different people may help to explain the occurrence of this breathing. The dropping backward of the tongue that often occurs in deep sleep tends to prevent the entrance of air, and the respiratory centre being relatively insensitive naturally in some persons as compared with others, we may conceive that in such persons, especially in the semi-consciousness of sleep, there would not be any response to the increasing CO_2 or to the lack of oxygen until the demand for oxygen and accumulation of CO_2 reached a high point, and then the phenomenon would appear. That posture may at any rate play an important part is indicated by the fact that I have repeatedly observed that Cheyne-Stokes breathing consequent upon severe organic disease, such as cerebral hemorrhage, will sometimes, though by no means always, disappear if the patient is turned from the back to the side. That the respiratory centre differs greatly in its sensitiveness in different people is indicated by a number of physiological studies made by Haldane and his co-workers, Hough and others, but is perhaps best illustrated in this connection by the fact that normal persons, even when awake, in unusual instances exhibit more or less distinct Cheyne-Stokes breathing, and in a normal man, whom I have seen, who showed at times, in tracings taken with the apparatus that I shall describe later, breathing of this character when lying on his back awake, the phenomenon disappeared when he lay on his side. I am indebted for these observations to Mr. T. M. Carpenter of the Carnegie Nutrition Laboratory. He had been studying some curious irregularities of CO_2 output in this man, which proved to be due to the irregularity in breathing. I mentioned to him the fact that even Cheyne-Stokes breathing may disappear when a person is turned on his side. Mr. Carpenter subsequently studied this man when he was lying on his side and noted that most of the irregularity both in respiration and in CO_2 output disappeared under these circumstances. In the absence of all other explanation I think the conditions in this case must be attributed to a peculiarity of the man's respiratory centre which permits of more marked and prolonged changes in oxygen and CO_2 tension in the blood than are possible in most persons without exciting respiration. The fact that his centre is relatively insensitive as compared with normal persons is shown further by the fact that distinct and sometimes long expiratory pauses are present regularly in the tracings of his respiration when the latter is most regular, indicating that his centre responds only slowly to the normal stimulus. The improved breathing, when he is lying on his side, may be due to the opening of the glottis being more free then or it may be due to local changes in circulation about the respiratory centre or there may be other factors.

In this country, especially, clinical interest in the relation of CO_2 to respiration has recently centered to a large extent around the work of Yandell Henderson, which has been of great

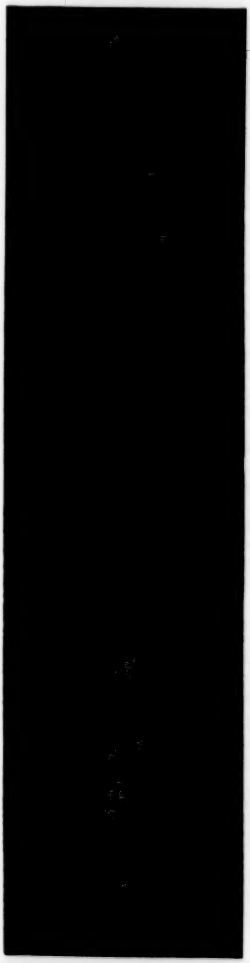
value in indicating the clinical importance of studies of respiration of a type that had not previously been appreciated by clinicians. Henderson has pointed out the possibility, in the first place, that the violent respiration that occurs at times from severe pain, fright or other emotion, and during ether anesthesia may be the cause of the cessation of breathing that so frequently occurs in the course of operations and that in occasional instances becomes very alarming and may, of course, end fatally. The explanation is, he believes, simply that in the increased breathing so much CO_2 is pumped out that the automatic stimulus to respiration ceases, and in the absence of consciousness the patient of course makes no voluntary effort to breathe. Of still broader interest is Henderson's further suggestion that shock is due, in some cases, at least to excessive pumping out of CO_2 in forced breathing, or to excessive diffusion of CO_2 from exposed coils of intestine. He has contributed a series of experimental studies in support of his view that the phenomena of shock follow great loss of CO_2, and that the occurrence of shock can be traced to this in many clinical instances. The first of his suggestions that I mentioned we undoubtedly need to heed until it is determined how important it proves to be. It is well established that apnea or cessation of breathing occurs for short periods after very moderate forced breathing, and for longer periods when the deep breathing has been more marked, and, as Henderson suggests, alterations in the sensitiveness of the centre due to the anesthetic or to other factors may make this much more important under the circumstances of operations than is normally the case. It is, I think, the experience of many skilled anesthetists that the apnea usually follows excessive breathing. Certainly at present it is desirable that even greater care than is customary in regulating the breathing in anesthesia be employed. The occurrence of apnea after forced breathing and the active voluntary effort that is required to overcome it is shown well by some accompanying tracings. In these and the other tracings the up-stroke is inspiration, the downstroke expiration. No. 1 is a normal tracing, No. 2 was taken during forced breathing, as was No. 3. In the latter, in spite of urgent efforts to continue the forced breathing regularly, though it had not been very excessive, the man lapsed frequently into apnea and the breathing became quite irregular, owing to the large loss of CO_2 that he had suffered. In the fourth period he breathed as he felt inclined, and that tracing shows very irregular breathing with superficial respirations separated by periods of apnea and with distinct periods of Cheyne-Stokes, all due to the preceding loss of CO_2.

As to the importance of loss of CO_2 in the production of shock I am more skeptical. This question was extensively discussed by the American Physiological Society from a general physiological standpoint last winter, and a number of important reasons were advanced against Henderson's views. I cannot take the time to review this discussion, but would mention that the results of experiments that I recently undertook for another purpose are opposed to his beliefs. I had normal men breathe normally for 15 minutes, then rapidly and deeply for 15 minutes; then a second 15-minute period of excessive breathing; and this was then followed by a 15-minute period in which the breathing was just what the subject wished. I determined the oxygen intake, the CO_2 output and the total air inspired in each period. The amount of air taken in with each respiration, as well as the general character of each respiration, could also be precisely determined from quantitative tracings of the respiration taken coincidently. All these important variable factors were determined by means of a very valuable apparatus devised by Dr. Francis G. Benedict, of the Carnegie Nutrition Laboratory. I am deeply indebted to Dr. Benedict for providing me not only with the use of his apparatus, but also with many other facilities in his laboratory, and for constant advice in my work while there.

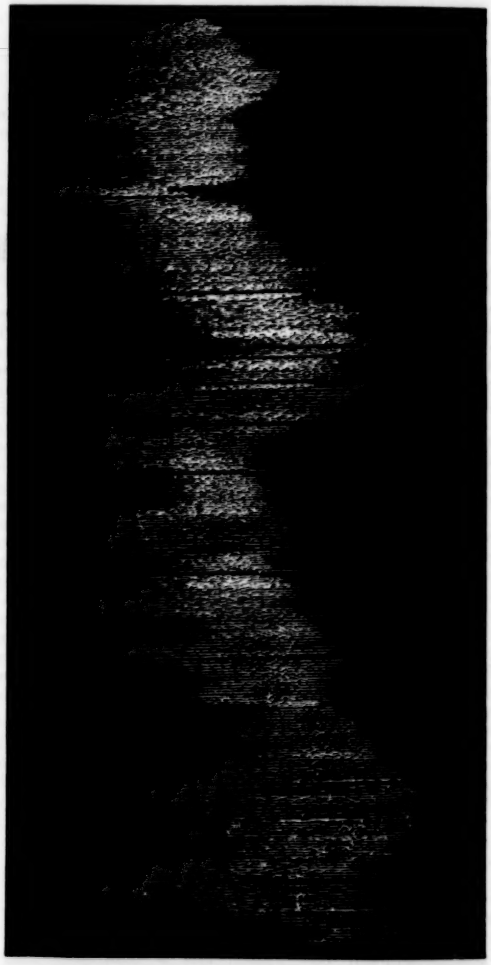
The apparatus, which has been described by Dr. Benedict consists, briefly stated, of a closed system of tubes, etc., into which the subject breathes. The air contained in the system is kept in constant circulation by means of a blower. The CO_2 is continually absorbed by soda lime and its amount is determined simply by the increase in weight of the soda lime container, while the oxygen absorbed is determined by admitting enough oxygen to bring the pressure in the system to the original amount, and reading from a meter the amount of oxygen necessary to accomplish this. A spirometer of the bell type constitutes part of the system. The movements of the bell are recorded quantitatively by means of a workadder and the amount of air entering the spirometer and hence the amount respired are thereby determined. The rod carrying the counterweight to the bell carries also a writing needle which gives tracings of the respiration on a revolving drum, and, since this needle moves upward or downward exactly as much as the bell, the value in air respired can be accurately determined for each respiration by measurements of the tracings.

In addition to the factors mentioned that I determined by this apparatus, I took the pulse rate, and observed any symptoms that occurred, and Dr. Harold L. Higgins of the Nutrition Laboratory kindly made for me coincidently in a considerable number of these and other experiments determinations of the blood pressure (with the Erlanger apparatus) and of the CO_2 of the alveolar air, using a modification of Plesch's method of securing the alveolar air, and the Haldane gas analysis apparatus. In these experiments the forced breathing actually lasted over 40 minutes in all instances, and

sometimes over 50 minutes, owing to time consumed between periods in arranging for the next period, during which time the excessive breathing was continued. The extent of the forced breathing was, I am sure, much greater than I have ever seen in that length of time, or in a much longer period, from pain, anesthesia, or fright or during shock. In some instances the ventilation throughout the fifteen minute periods of excessive breathing was as much as five times the normal. It resulted in a great excess in the output of CO_2, repeatedly more than doubling the normal output, and in some instances causing a loss from the body of much more CO_2 than the whole amount of blood in the body contains, most of the excessive output coming, of course, from the other fluids and the tissues which contain even more CO_2 than the blood. Some of the most marked losses of CO_2 (that is, the amount eliminated in the two forced breathing periods over and above the amount eliminated in the normal period) were as follows: 4.54, 4.72, 5.53, 6.55, 6.78, 7.04 and 8.11 litres. The oxygen consumption showed that this excessive output of CO_2 was in but small part due to increased metabolism. In other

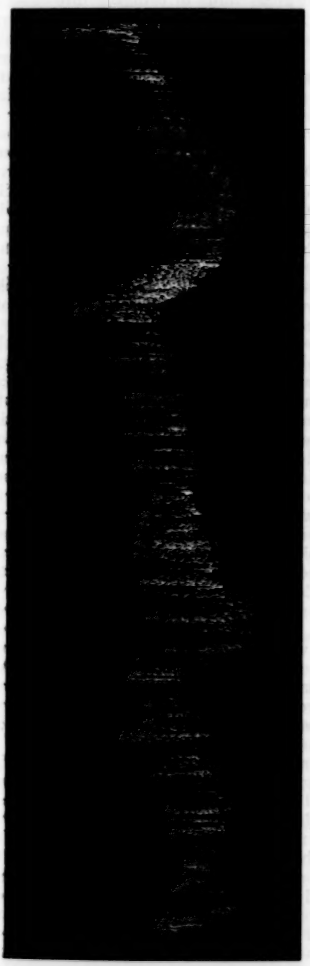


No. 1. Normal tracing. The two very deep inspirations are purely accidental and without significance. The extended changes in level in this and other tracings are due to absorption of oxygen from the apparatus and its readmission. In all the tracings the upstroke is inspiration, the downstroke expiration.

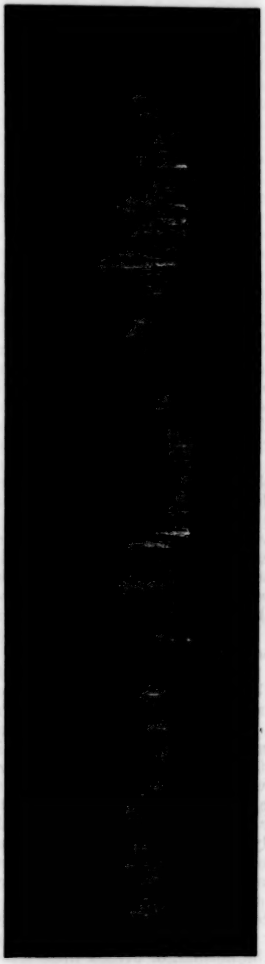


No. 2. Forced breathing.

words it was CO_2 that was simply pumped out by the forced breathing. This loss gave rise to the symptoms usually produced by prolonged forced breathing: tingling and numbness in the extremities, in some instances actual severe brief spasm in the hands, feet, forearms and legs, giddiness, headache, which was at times prolonged for an hour or two, and in the rest period superficial respiration, more or less marked pauses in breathing and usually mild or distinct Cheyne-Stokes breathing. Tracings 1 to 4 are from one of these experiments. These symptoms were never at all alarming, but they can become so unless care is used. The men who



No. 3. Taken directly after No. 2. Forced breathing frequently interrupted by apnea.



No. 4. Taken directly after No. 3. Cheyne-Stokes periods and simple apnea. Marked variations in rate and amplitude.

acted as subjects for me were much interested in the experiments and usually wanted to force the breathing much harder than I wished, in their desire to get more striking results, and they often had to be actually restrained in order both to avoid bad results and to accomplish the purposes I had in view. In spite of this great loss of CO_2, and these pronounced symptoms, none of the men showed any signs of shock. The blood pressure remained essentially unaltered. This statement must be made with some reservation in regard to the period of forced breathing, because of the difficulty in making exact ob-

servations during such efforts, but in the after period of complete rest, in the early part of which the effects should have been most marked, the results must be considered reliable, and showed as compared with the normal period, usually no noteworthy change, and at most only about 5 mm. difference from the normal in disastolic pressure, and usually less than 10 mm., once or twice 25 mm., in difference in systolic pressure during the forced breathing. In all instances any change observed was a *rise* in pressure during, and apparently due to, the effort in the forced breathing. The pulse rose with the increased effort at first, and sometimes continued high during the forced breathing, but more frequently it fell after a time in spite of continued forced breathing, and during the after period of rest it almost invariably fell even well below the normal, gradually approaching normal again coincidently with increasing accumulation of CO_2 in the blood and perhaps as a consequence of this accumulation. Indeed, the evidence I have would suggest, though there are several reasons why I am not sure of this, that reduction of CO_2 tension in the blood directly reduces the heart rate while increase of it increases the heart rate, the latter point being suggested also by other knowledge that we already have. This is opposed to Henderson's observations but his methods of experimenting may have caused an increase in pulse rate from other causes than the loss of CO_2. It appears to me possible that CO_2 tension has a direct or indirect hormone influence upon the heart—that it is one of the pace makers for the heart. At any rate, the pulse did not show the characteristics of shock but rather the contrary. None of the subjects showed any of the general symptoms of shock. That the CO_2 tension of the blood was actually low was shown by determinations of the CO_2 in the alveolar air. Owing to the rapidity with which CO_2 passes through the pulmonary alveolar walls, the tension of the CO_2 in the air contained in the pulmonary alveoli is practically the same as that in the venous blood in the lungs and therefore determinations of its tension in the alveolar air indicate directly its tension in the venous blood. The fall in CO_2 tension consequent upon the forced breathing was very decided. It repeatedly fell to about 50% of the normal, or even a little lower. Examples (expressing the amount of CO_2 in percentages of an atmosphere) follow: In one instance it fell from 4.94 to 2.68, in another from 6.75 to 3.19, in others from 5.91 to 3.61, from 6.26 to 3.28 and from 6.94 to 3.42. I think that if shock is likely to develop simply from pumping out CO_2, some at least of these men should have shown it in some degree. There are probably important elements of truth in Henderson's views, but for the reasons that I have given, as well as for other reasons, it appears reasonably clear that loss of CO_2 alone is not a sufficient explanation of shock. If this is the case, I should feel that we need to be very cautious in employing, as he has recommended, and as has to some extent been done, inhalations of CO_2 to replace that supposedly lost, as a treatment of shock. It is quite possible that such inhalations might produce bad results; and if there had been no noteworthy loss of CO_2 as is not improbably often true in shock, they would be the more likely to be harmful. I would repeat, however, what I said earlier, that the immediately utilitarian application of investigation is usually far less important even to the clinician than the new conceptions that it leads to, and whatever may prove true of its details this work of Henderson has already been of great value in bringing into close touch with clinical problems methods and conceptions that previously had but little clinical significance and it will have increasing importance from this standpoint. His suggestion that CO_2 be used in the treatment and prevention of dangerous apnea in operations and under other circumstances is a matter to be looked at separately, and deserves to be studied thoroughly, though much care should be exercised, of course, in investigating it in human subjects until it is more clearly determined what its value and dangers may be.

I wish now to refer to some experiments with the same apparatus that I undertook for other purposes, namely, to determine if possible the relative results accomplished by some of the different types of breathing so commonly seen in disease. With myself and others as subjects breathing first normally, then superficially, then as slowly and deeply as possible without distinct discomfort, I determined the CO_2 output, the oxygen intake and the total ventilation, in 15-minute periods, and made measurements of the records of the individual respirations. In each experiment the deep and the superficial breathing were kept down to the lowest amount possible without producing distinct respiratory distress, in order to make it as nearly certain as possible that the demand for air was, in each instance, being just met, and at any rate not exceeded. Otherwise I should of course have been entirely unable to tell whether these periods could properly be compared with the normal, as it would have been impossible to have told whether we had not breathed much more than necessary. In the abnormal forms of breathing we avoided as far as possible any use of the accessory muscles of respiration, a point of importance in interpreting the results.

In most instances we had the impression of having breathed less in total amount during the period of superficial breathing than in the other periods. In every instance quite the contrary was true. The record always showed in the neighborhood of 25 per cent. more total (tidal) ventilation in this period than in the normal period and the lowest amount of air used was always in the slow deep breathing; as much as 25 per cent. less than in the normal period and as much as 40 per cent. less than in the period

of superficial breathing. Evidently, then, from the standpoint of gas exchange the slow, deep form of breathing is very economical of effort while the superficial form is extremely wasteful.

It is easy to explain why this is true and at the same time the difference becomes emphasized to a rather astonishing degree if we consider the influence of the "dead space." The dead space means, of course, that space in the chest into which, with each respiration, air enters and passes out again, but comes in contact with no areas in which any considerable amount of diffusion of gas occurs to and from the blood, the space, that is, in the upper part of the respiratory tract. How far down towards the alveoli its limits should be put is not wholly clear as some diffusion appears to occur through the walls of at least the smaller bronchi. Entrance and exit of air into this space is a waste so far as any direct influence upon gas exchange is concerned, and each respiration must, therefore, have the dead space counted out from the amount of air apparently taken in if we wish to know how much is really efficient in increasing gas exchange. It becomes apparent immediately that the influence of the dead space is much more important in the rapid superficial forms of respiration than in slow, deep breathing, as a little consideration will show at once. Various figures are given for the size of the average dead space. All are to some degree approximate. Used as an average those most commonly accepted are the figures of Lœwy, and made the average capacity about 140c.c. I have taken these figures as a standard factor in calculating the effect of the dead space. Now suppose, for example, that a man breathing deeply takes in 1800 c.c. of air with each respiration, and breathes only four times a minute. He takes in a total of 7200 c.c. each minute. Counting out 140 c.c. of dead space for each of these four respirations, viz. 560 c.c. all told, we have left 6640 c.c. of real or alveolar ventilation. If this man at another time breathes with a normal rate and amplitude, taking in 450 c.c. of air each time, and breathing 16 times a minute, his total ventilation is the same, 7200 c.c., but we must take out the dead space 16 times, viz. 16 x 140, or 2240 c.c. and we have left only 4960 c.c. That is, the deep slow breathing would give in this instance 33 per cent. more real or alveolar ventilation than the more rapid type of breathing, which in this instance, however, is the normal type. The difference would be still more marked with a more superficial type of breathing. If he breathed 32 times a minute, taking in 225 c.c. each time, he would again have 7200 c.c. tidal air but 4480 cc. must be deducted now so that only 2720 is alveolar ventilation. As compared with this form of breathing the slow deep form with only four respirations per minute would give 144 per cent. more alveolar ventilation. This helps, it would seem, to show why in the panting respiration following active exertion an occasional deep breath is so grateful, and why patients with cardiac and other severe disease so often break a rapid, superficial type of breathing with a deep sigh or gasp. The deep breath does the work of a surprisingly large number of superficial ones, but the deep breathing cannot be kept up continuously, probably because of the greater mechanical strain it causes upon the circulation.

The figures that I obtained in a typical example of the experiments that I am now discussing are shown in the table below. In this instance, then, the superficial form required over ten times the number of respiratory efforts that the slow, deep form did, and 2.6 times the number of efforts required by the normal form, but the results in CO_2 output and in the oxygen intake were very close to each other in all instances. There is a slight reduction, in the deep breathing period, in the output of CO_2 and a slighter rise in the oxygen intake in both the superficial and deep breathing periods, but this latter rise was due, I think, entirely to the fact that, as I said, in all these experiments an effort was made to keep the respiration down somewhat, and this together with the effort to maintain a form of breathing to which we were unaccustomed, led to extra effort, chiefly to a constant tendency to slight action of the accessory muscles of respiration. That there was slight suppression of the

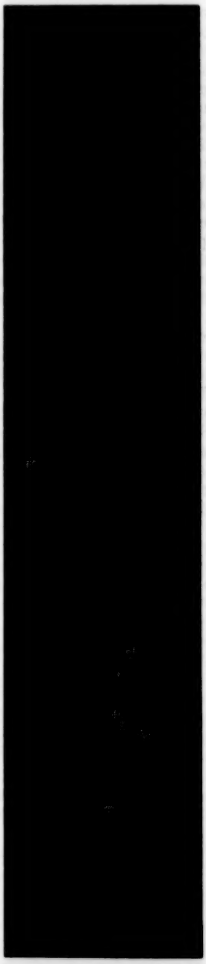
Breathing.	Respirations.		Ventilation.		Alveolar, CO_2	CO_2 output.		Oxygen absorbed.	
	Average per min.	Total, 15 min.	Average per min.	Total, 15 min.		Average per min.	Total, 15 min.	Average per min.	Total, 15 min.
			liters	liters	per cent.	c.c.	cc.	c.c.	c.c.
			6.21	93.25					
				24.36+					
Normal	11.6	174	——	——	6.43	257	3850	304	4580
			4.59+	→68.89					
			4.76	71.51					
				5.88+					
Deep	2.7	41	——	——	6.76	234	3517	320	4800
			4.37+	→65.63					
			8.70	130.60					
				65.10+					
Superficial	31	465	——	——	6.81	257	3867	314	4720
			4.26+	→65.50					

+ →Alveolar ventilation + Dead Space

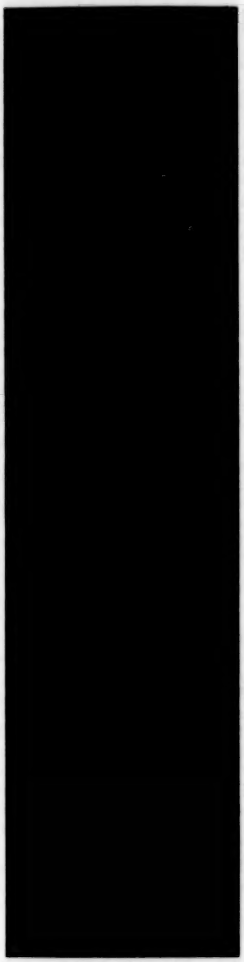
respiration is shown by the records for the CO_2 in the alveolar air. These are slightly higher in both the superficial and the deep form of respiration than in the normal period. But the CO_2 output and the oxygen intake, as well as the figures for the alveolar CO_2, are so close as to serve as good indications of the fact that the three periods can properly be compared with one another as having accomplished just about the same result.

The most striking fact of all, perhaps, is that the real amount of air that reached the alveoli was almost exactly the same in all instances. Much the same results were obtained in all experiments of this sort that I conducted, the alveolar ventilation being in practically all instances within about 5 per cent. of the same amount in all the periods in each experiment. Evidently in whatever way we breathe, nature requires of us only a definitely essential amount of alveolar ventilation, and if other conditions remain the same this amount is the same, but the number of breathing efforts required to accomplish this ventilation varies extremely widely with different forms of breathing. It is often stated, especially by physiologists, that very deep breathing is wasteful of effort. My results show precisely the contrary. This is, however, due to the fact that such statements refer to deep *labored* breathing in which much extra muscular effort is used in each respiration. As I stated earlier I was dealing with deep *unlabored* breathing and purposely excluded any violent effort.

What, then, is the explanation of the occurrence of these different types of breathing? The abnormally deep form of breathing can, upon theoretical grounds, be readily thought of as being due to one of two things. It may be due to a loss of the vagus influence upon respiration, the vagus appearing, from the work of Scott and others, to restrain the depth of respiration within normal bounds, or it may be the consequence of simply a dulling of the sensitiveness of the respiratory centre, so that it responds only after long intervals and then meets the accumulated demand by a deep respiration. Neither of these alone seems altogether satisfactory. It is somewhat of an assumption to say that loss of vagus control is responsible, for complete loss of vagus control appears to result not simply in deep, but also in labored, breathing; and too we have in many of these cases no other direct evidence that vagus influence is disturbed. On the other hand, if it were due simply to insensitiveness of the respiratory centre, it is not clear why the breathing should be so regular in amplitude in many instances of this kind, and not tend to assume the Cheyne-Stokes characters. It is not improbable, however, that either of these influences may produce this result at times. They may also work in combination and also other factors may come into play. Furthermore it may be that other influences than a reduction in CO_2 tension or oxygen tension or in the sensitiveness of the respiratory centre are necessary to lend the Cheyne-Stokes characteristics, for Haldane and Douglas' theory while explaining the periodicity does not give any satisfactory explanation of the crescendo-diminuendo character of Cheyne-Stokes respiration. It would seem, however, that those abnormal forms of breathing that show only slow respiration with decided pauses in expiration or distinct periods of simple apnea and those which exhibit Cheyne-Stokes character may often, if not always, be due to causes that differ simply quantitatively not qualitatively, for forced breathing

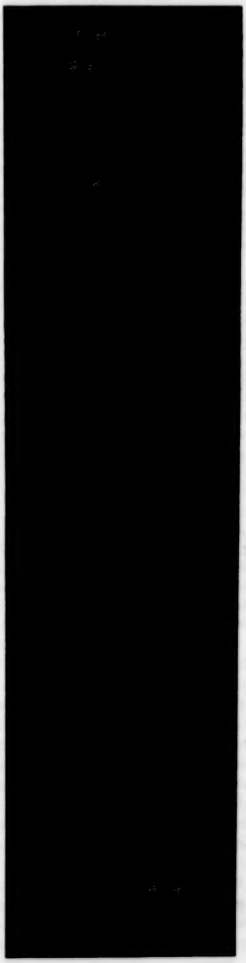


No. 5. Shows chiefly a long period of apnea at the beginning of rest from forced breathing.



No. 6. Great irregularity of rate and amplitude after forced breathing.

may be followed by either or both of these abnormal forms of breathing. The readiness with which one form merges into the other after forced breathing, the fact that the one cause may produce either or both forms even in the same person and that all varieties and all intermediate stages from slight periods of simple apnea to marked Cheyne-Stokes breathing may follow this same cause are matters of decided clinical interest and significance and must render us somewhat cautious of laying great stress upon the qualitative differences seen clinically in respiratory arrhythmias until we know more about their actual causes. Some of the accompanying tracings illustrate the variability in the character of the respiratory irregularities following excessive breathing. No. 5 shows, immediately at the beginning of the rest period following two fifteen-minute periods of forced breathing, prolonged apnea. For three and a half minutes there is but one breath of considerable size and a few scarcely large enough to overcome the dead space. In fact there was during that period less than a litre of alveolar ventilation while the same man had about 4.6 litres alveolar ventilation per minute under cir-



No. 7. Superficial, mildly apneic breathing, at times rhythmic, following forced breathing.

cumstances differing only in the absence of preceding forced breathing. After this he took a good-sized double breath and then the respiration became very superficial for some time, gradually increasing in amplitude to about normal for him, but there were few and only slight further periods of apnea, no Cheyne-Stokes and no other marked irregularities in either rate or amplitude. No. 6 is from the same man under the same circumstances but from another experiment. It shows continuously very great and erratic irregularity of amplitude and rate but few actual marked pauses though there is strong tendency to the other features of Cheyne-Stokes. No. 7 is characterized chiefly by very superficial breathing with marked pauses between breaths, the size of the pauses and of the breaths varying a good deal. Later in the tracing there occur slight periods of crescendo breathing but separated, as is chiefly the case in No. 6, not by apnea, as in typical Cheyne-Stokes, but by tachypnea. This was after one of the most severe experiments, but the results in the character of the breathing are less marked than in other experiments. In No. 4 there is superficial breathing with marked apneic pauses, also typical short periods of Cheyne-Stokes and other periods showing the Cheyne-Stokes type of breathing minus the apneic periods. In all these the subject breathed simply as he desired without voluntarily influencing the character of his breathing.

The superficial type of breathing in disease seems to me susceptible of more definite explanation than the slow deep form and comprehension of it would be of much more frequent clinical importance. It occurs chiefly in certain toxemias, infectious or other, and in severe circulatory weakness, aside from those instances in which it is simply neurotic. It appears highly probable that excessive accumulations of CO_2, or of other (chiefly unknown) substances that, besides CO_2 are almost certainly active in disease in exciting the respiratory centre, irritate the centre excessively in such conditions and produce increased frequency of respiration. Indeed the centre in many of these cases, when they are severe, is probably continuously irritated, and hence there is a demand for a new respiratory effort almost constantly. There are also other reasons for the occurrence of this breathing in severe circulatory distress. Such breathing may readily modify favorably for the failing heart the frequency and extent of the well-known suction and compression effects of respiration upon the blood stream in the thorax and abdomen that have been so well described by Tigerstedt. While the actual influence upon these of any particular changes in respiration is rather complex and it is difficult to postulate definitely whether the influence would be good or bad in particular types of cases, there is one point that seems to me to deserve more direct attention than I have seen definitely given to it. Rapid breathing, in lessening the extent of the changes in pressure in the thorax and abdomen that occur in respiration, certainly reduces, as compared with slower breathing, the extent of the variations in systemic blood pressure that are the normal and inevitable consequence of the usual respiratory changes in intrathoracic and intraabdominal pressure, and experimentally very rapid breathing appears even to wipe out entirely the general blood pressure changes. It may readily be an important source of relief to the heart, when under severe strain or very incompetent, to be freed of the marked variations in strain that occur with decided changes in blood pressure. Increase in respiratory rate from any cause would, however, if carried far, make respiration itself tend to become inefficient or at least make it do much more work in accomplishing the same result, as my figures indicate, for if there is marked increase in the rate, the amplitude of respiration suffers, and amplitude has more influence on the end result than has the rate. This may easily establish just the same type of vicious circle as occurs under certain circumstances with the heart. With the latter organ, when the rate increases, the amplitude of the stroke tends to become deficient and hence when working inefficiently, but rapidly, under strain the heart often tends to race still faster because of its failure to accomplish its function, the failure being due to insufficient amplitude of stroke. In racing it makes an ineffectual, and always increasingly hopeless, attempt to make greater rate take the place of amplitude. We have good reason to consider that respiration also often tends to increase in rate at the expense of amplitude when the center is severly excited. This is clearly indicated by Hough's recent experiments on the different influences in different normal persons of breathing into an enclosed space in which the CO_2 constantly accumulates. In most of his experiments after a time—sometimes very early—the rate increased and usually at the increasing expense of amplitude. Besides the effect of overstimulation of the respiratory centre the rate is, in all probability, hastened to an unduly great extent in many instances in the attempt to make mechanical conditions in the chest favorable to the circulation. The more respiration races, the more muscular labor it costs and the less it accomplishes with a given amount of labor.*

* Kraus' studies of the effects of work upon the respiration of persons with incompetent hearts, and others, have been interpreted as showing that in cardiac cases the amplitude of respiration increases under moderate strain as much as, or more than, the rate, just as it does in normal persons. In the cases that he studied, which were relatively mild cases of cardiac weakness, the amplitude did at times increase proportionately during work but this was not always true, and these cases are, at any rate, not comparable with those I refer to in which there is severe incompetency even when there is no unusual strain and in these amplitude often suffers. Furthermore, in most of Kraus' cardiac cases the amplitude of respiration was abnormally low even when there was no physical strain and although in some it did increase with work, the result accomplished in such cases with a given increase of amplitude is, because of the greater effect of the dead space in superficial breathing, not as marked as a proportionate increase of amplitude in individuals who start with a normal or even greater degree of amplitude.

The experiments I have described appear to me to make reasonably clear a much discussed question which has been rather obscure and which has a good deal of significance clinically not only because of its individual importance but because of its bearing on a large subject, that is, the manner in which morphine accomplishes its effects in many cases of respiratory distress, and especially in cases in which this distress is due to badly failing heart. It has been very hard to understand why a drug which is not a circulatory stimulant should cause such an evident and often such a rapid improvement in the circulation as it sometimes does. A simple general sedative action and the consequent rest afforded does not seem a sufficient explanation of the striking and rapid change in the circulatory picture often seen, nor are the other explanations that have been offered very satisfactory, and it is most of all difficult to understand why an apparently hopelessly failing respiration should be so greatly relieved by a powerful respiratory depressant. If, however, the centre is in these cases really over-excited and is dulled in sensibility by the administration of morphine, and thus respiration changes its pace to slower, this, as has been generally recognized, would of course greatly reduce muscular labor, but it would do this far more than has been appreciated and if it would, at the same time, tend to result in respiration actually accomplishing a great deal better its own function and thus help to relieve the respiratory centre itself of strain, and likewise rapidly eliminate an excess of CO_2 (and perhaps other excitants) from the blood, as well as get in more oxygen, the matter would seem to be fairly plain. But if the explanation of the hurried breathing that I have outlined above is correct, if, that is, it is due only partly to a struggle to increase the ventilation in the lungs, partly also to a struggle to make the mechanical conditions easier for the heart, it is apparent that, as is practically a fact, respiratory depressants, such as morphine, must be used in such conditions with great care and judgment. Although both the factors mentioned had been overdoing the matter, a very pronounced slowing of the breathing might readily throw unfavorable strain upon a very incompetent heart by producing too great respiratory changes in pressure, even though the contrary source of strain (undue labor from excessive rate) were overcome and although the ventilation also improved.

Consideration of the points that I have just discussed convinces me that we certainly need to determine as far as we can, in any pathological disturbance of respiration, when the disturbance is associated with exhaustion of the respiratory centre, and when it is, on the contrary, due to over stimulation of the centre. The treatment would, in the two cases, be the opposite. I think we may reasonably suspect that we have in many instances been making an error entirely similar to that which was made for years in treating the circulatory failure in acute infectious diseases with the mistaken idea that it was primarily due to excess of blood pressure whereas it is usually due chiefly to quite the contrary condition. We may, that is, in respiratory distress, equally well have been dealing at times with a condition directly the contrary of what we thought we were treating, and may, especially, very often have been treating an overexcited respiratory centre by still further exciting it. Likewise it appears to me that the effects of the respiratory stimulants need, in purely experimental studies, as well as clinically, to be investigated to determine much more accurately than has been done, their effect on amplitude of respiration, as compared with rate, and to determine their actual influence not merely upon tidal ventilation but, much more important, upon the amount of air that passes in and out of the alveoli. In most of the work that has been done upon them I think their influence upon the actual respiratory function may perhaps have been judged quite as inaccurately as I believe we often judge clinically of the effects of different forms of respiration. Even tracings of the respiration, unless made quantitatively, can give a reliable idea of the effect of a drug upon ventilation only when the effect is so very decided that there is no question of mistake. It is quite possible that we may find that some drugs that are called respiratory stimulants actually lower the efficiency of the function of respiration in some circumstances of disease and even in normal conditions, and the contrary, may be true of some so-called respiratory depressants..

Whatever the fate of these suggestions that I have made, I think there can be no doubt that valuable information will be furnished by the coincident study of a large group of variable factors, in further investigations of respiration, clinically as well as in the laboratory. With Benedict's apparatus there is in researches of this kind the great advantage that we can, by relatively simple means, make coincident observations of the CO_2 excretion, the oxygen intake, the tidal and alveolar ventilation and the efficiency of each individual respiration. Yandell Henderson also has devised recently a very ingenious and inexpensive instrument that will apparently determine quantitatively the value of individual respiration and give the tidal and alveolar ventilation. One can, of course, add to these studies observations of changes in the circulation and various other factors. From such studies I think we may reasonably hope that in diagnosis and also in treatment we may gain some ground in the attempt to comprehend and benefit symptoms that are frequently even more trying than pain, and much less subject to relief, and that have been vastly less studied than pain.

Original Articles.

PYELONEPHRITIS OF PREGNANCY AND THE PUERPERIUM.

(WITH A REPORT OF CASES.)

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[For permission to report these cases I beg to express my indebtedness to Dr. Charles M. Green, Senior Visiting Surgeon to the Gynecological Department of the Boston City Hospital and Senior Visiting Obstetrician to the Boston Lying-in Hospital; and to Dr. Franklin S. Newell, his associate, whose interest, advice and encouragement furnished the inspiration for this article.]

PYELONEPHRITIS is an inflammatory condition of the pelvis of the kidney with extension into the renal tissue, and is, according to Councilman[1], invariably due to a suppurative lesion caused by pyogenic bacteria. Although the infection occurs primarily in the pelvis, invasion of the adjacent structures is not long delayed. Nor is this to be considered remarkable when one remembers the relation of the calices and the pyramids, and the rich lymphatic circulation of the entire organ. Simple pyelitis, therefore, as an independent clinical entity, may be disregarded.

The disease, as a complication of pregnancy, was either unrecognized or confounded with cystitis until Kruse[2] of Wurzburg, in 1889, first brought it to the attention of obstetricians. In 1892 Reblaud[3] published a monograph upon the subject and reported five cases. The condition was further described by Vinay[4] of Paris in 1899. It remained, however, for Craigin[5] in 1904, to publish the first important article upon the subject in English, the writer's discussion having been based upon his experience with a series of ten cases.

Before entering further into a consideration of this disease, it seems wise at this juncture to review briefly the normal anatomy of the kidneys. The right, in addition to being the smaller—weighing 5 to 8 grams less than the left—is usually nearer the middle line and 1 to 2 centimeters lower than its fellow. It is also subject to greater variations of position, and when very low, its pelvis presents on the anterior surface with a sharp angle in the ureter where it emerges from its insertion behind the renal vessels. To the lower pole of this kidney, too, one is apt to find a wandering artery causing flattening of the ureter at the point of contact with it.

All of these factors conspire to render the right kidney the organ of election for obstructive process and the subsequent infection of the distended pelvis. Still another important anatomical consideration is the course and character of the ureter. Making a sharp angle as it leaves the pelvis, it passes downward, inward and forward, the right making a long curve, and enters the true pelvis at the sacro-iliac junction. At this point it crosses the external iliac artery near the bifurcation of the common trunk. Here, too, the fatal predisposition of the right half of the urinary tract continues; for the external iliac vessels overlap more prominently on the right than the left, and the right ureter is correspondingly more exposed to pressure at the pelvic brim than its fellow. Within the pelvis both lie within two centimeters of the body of the uterus.

The normal calibre of the ureters at the widest point is about that of a goose-quill, and, according to Ludwig, the urine is excreted through them at a pressure about equal to 10 millimeters of mercury. Normally they contract in rhythmic peristalsis every fifteen seconds. Lucas[6] found in experiments upon dogs that contractions in the middle portion, which is supplied chiefly by the spermatic and inferior hypogastric plexuses and is deficient in nerve cells, were inhibited by pressure on the distal portion, similar to that which might be caused by the pregnant uterus upon it as it rests upon the pelvic brim.

The frequency of this disease is much underestimated, yet from a review of the literature it appears to be of comparatively rare occurrence. Vinay in 1894 had seen but two cases and during the next five years had only increased his acquaintance to nine. Recently he is accredited with estimating that but one case a year occurred at his clinic in Paris. Craigin saw ten cases from 1900 to 1904. Kendirdjif[7] collected from the literature 62 cases in 1904, Opitz[8] 84 cases in 1905, Cumston[9] 10 cases in 1906, Swift[10] 40 cases in 1907, Mirabeau[11] 10 cases in 1907, and French[12] 20 cases in 1908. It is not unlikely that the same cases were reported in more than one series.

The disease occurs most frequently in poorly nourished women between the ages of 20 and 45 years. Much difference of opinion is met in regard to the influence of the number of pregnancies upon its occurrence. The writer agrees with Craigin that the greater the tone of the abdominal muscles, the greater the predisposition. Over 60% of the cases in the present series occurred in the first or second pregnancy. The favorite time seems to be in the last two months, though cases beginning at the fourth month have been recorded. It is generally admitted that the right kidney is the more commonly affected. When both kidneys are involved, the primary lesion is invariably found on the right. Vineburg[13] estimates that about 15% of the cases have bilateral pyelonephritis. Twynam[14] considers the likelihood of pyelitis in the right kidney sufficiently great as to cause him to advise against pregnancy in patients who have had the other removed.

The possibility of a pre-existing movable kidney in some of the cases is worthy of consideration in view of Glenard's[15] estimate that this condition occurs in 22% of all adult females. In

statistics which he reviewed, Jones[16] found that 90% of the cases of movable kidney occurred in women and 80% were right-sided, as were 55% of his own cases of hydronephrosis. These, together with the anatomical factors to which attention has already been called, and upon which they no doubt depend, play an important role in the infection of the right kidney.

Still another mechanical influence worthy of notice is the position of the fetus and the character of the presentation. About 90% of all presentations are vertex. Of these, in a great majority the fetus lies in the right oblique uterine diameter, which causes the hard head to exert greater pressure on the right ureter, already flattened by dextro-torsion of the uterus, than upon the left. The artificial hydronephrosis which results makes the right kidney a prey to subsequent infection. The engorgement or passive congestion which has resulted from pressure on the inferior vena cava, and, in the later months of pregnancy upon the renal veins, has already rendered the organ vulnerable. The stagnant pool of the renal pelvis then becomes a hatchery for vagrant bacteria.

Their mode of entrance is uncertain. Four avenues are possible,—the blood-stream, the lymphatics, extension upward from the bladder and direct transmission from the colon. Infection by the pyogenic cocci, with the exception of the gonococcus, and by the tubercle bacillus may come through either of the first two channels. Why the kidneys should be marked for the sacrifice, and especially the right kidney, is not altogether clear, as the other organs are certainly apt to be in a reduced state as well as the kidney. During an acute infection Rolly[17] found bacteria vastly more numerous in the blood than in the urine, so it would seem likely that another avenue was selected. Infection by extension from the bladder is rare, and is then invariably gonococcic.

Direct transmission through the colon into the kidney was demonstrated experimentally by Mirabeau. He ligated the right ureter in rabbits and then fed the animals pure colon cultures. Death resulted from pyemia or septicæmia, and the right kidney showed the characteristic lesions of pyelonephritis. Similar investigations have shown that the presence of the colon bacillus in the blood-stream is not essential to the production of this condition. Kastner[18] in his studies of coli-pyelitis in children found the majority of cases in females. Briscoe[19] in the *Lancet* has called attention to the greater frequency of the infections of the kidneys in women than in men, and believes that the organisms find entrance through the intestinal coats. By far the greater number of cases show the colon bacillus in culture. In infections of the urinary tract Dodge[20] found it in 49 out of 61 cases, Craigin in 3 out of 7; Swift in 17 out of 17, Vinay in 8 out of 9, Brown[21] in 7 out of 20, and Rovsing[22] in 285 cases of pyelonephritis found the colon bacillus in 180.

The predominance of this organism may be readily accounted for by the tendency to constipation in pregnant women; the accessibility it has to the kidney, especially the right, a third of whose peritoneal covering is denied it by the overlapping of the ascending colon; and the omnipresence of the bacillus in the large intestine.

The pathological changes in the kidney in pyelonephritis are striking.

The organ is large, congested and opaque, with occasional ecchymoses on its surface. Small yellowish areas appear in and beneath the capsule, representing necrosis with invasion of leucocytes. On section the cortical and sub-cortical zones are studded with miliary abscesses due to bacillary emboli. Infection by the staphylococcus is characterized by abscesses in the pyramids alone, while in infection by the colon bacillus, the lesions are found universally distributed.

The pelvis is generally greatly dilated and contains pus, colloid material and decomposed urine. It is usually dilated downward, forward and inward—following the line of least resistance. In one of Jones' cases its capacity was found to be five ounces. The ureter is invariably dilated as far as the brim of the pelvis, and may be as large as the small intestine. Stadfield[23] found dilatation of the ureter in 9 out of 12 autopsies performed upon pregnant women. Olhausen[24] observed 14 cases of dilatation of the right ureter in a series of 16 cases, and Lohlein[25] estimates that 25% of all kidney complications show dilated ureters at autopsy. Where the pelvis has long been distended, a valve-like fold may sometimes be found at the proximal ureteral orifice, which no doubt plays an important part in causing subsequent attacks. Occasionally strictures occur. Stoeckel[26] has found a point 10 to 13 cm. from the bladder where the ureteral catheter passes with difficulty.

The symptoms are subject to a wide range of variation in number and intensity. Usually they develop insidiously and without attracting the patient's attention, suddenly fulminating in a stormy onset. Flatulence, constipation or diarrhea with malodorous stools may precede the attack.

Irritability of the bladder with frequent smarting urination is an early sign. In the acute cases this is followed quickly by pain in the loin, radiating around to the front of the abdomen and down into the pelvis. Chills, headache, fever and profuse perspiration occur in most of the cases. Intermittent pyuria is a constant symptom. Nausea and even severe vomiting may be present. A dry cough, increased frequency of respiration and voluntary dyspnœa with subcrepitant rales at the base of the lung for the affected side are observed in the more severe cases.

The patient's general condition depends upon the amount of absorption and the virulence of the infection. A terminal state resembling ty-

phoid occurs in the fatal cases. The temperature varies from normal to 104.5 and follows an irregular curve. It usually attains its greatest height synchronous with the attacks of pain.

Great variation of the pulse is noted, its rate ranging from 96 to 160. Reed[27] and others have observed that it does not always follow the temperature. Elevation of the blood pressure may occur in suppurative processes limited to a single kidney. As shown by the observations of Kato[28], it may reach 150 millimeters, at which point it remains until tension on the kidney is relieved, being higher and more persistent than the transient type described by Prentiss[29] occurring in normal pregnancy. The leucocytosis seldom exceeds 18,000, but may be as high as 30,000. A differential count of the white cells shows an excess of polymorphonuclears.

The urine is turbid, pungent and generally high colored. Pus, in a moderately severe attack, may constitute one per cent. to five per cent. of the entire volume. The reaction is invariably acid. Pilcher,[30] however, from catheterization of the ureter, concludes that it may be alkaline in the pelvis if there has been long retention. The 24 hour amount varies greatly from day to day, being diminished as much as 30% during an acute attack. The specific gravity is rarely in excess of 1.016. Elimination of urea, which according to Matthews[31] is usually lower than normal in the late months of pregnancy, is probably but slightly influenced. An excess of indican is usually found. Albuminuria occurs in practically every case, and may be caused by pressure on the ureter alone. The degree seems to be independent of the severity of the lesion. Chute[32] has found as little as 1-40 of 1% estimated by Esbach's method in a case of pyelonephritis of considerable severity. Examination of the sediment usually shows the presence of pus, transitional epithelium, candate cells from the pelvis of the kidney, and, in the more severe cases, granular casts and blood.

On physical examination the abdomen is generally found to be distended and tympanitic. Tenderness is most marked in the loin, and just above McBurney's point. It may be elicited, too, at the costo-vertebral angle by bi-manual pressure. Enlargement of the kidney is found in about 20% of the cases, and is to be suspected when ballottement can be elicited even in the absence of a palpable mass. In a small number of cases the ureter may be felt by vaginal examination, where it crosses the pelvic brim, as a thick, tender cord of the calibre of a lead pencil.

Edema of the extremities or dependent parts is infrequent.

The diagnosis is not difficult in the majority of cases. Wherever there is a history of frequent voiding of turbid albuminous urine, purulent at intervals, accompanied by chills, fever, malaise and pain in the loin, pyelonephritis is to be suspected. Tenderness over the kidney and at the costo-vertebral angle, reflex flexion of the thigh and spasm of the recti and lumbar muscles, and the presence of a palpable or ballottible kidney affords confirmatory evidence. It may be confused at the onset with pleurisy, pneumonia or influenza, or with lumbago; in the later stages with typhoid fever, with salpingitis and with uterine sepsis, with appendicitis, with cholecystitis, and with simple cystitis. The development of respiratory signs is usually sufficient to eliminate the first group. The leucocytosis is always higher than in typhoid and usually lower than in the acute surgical diseases of the other abdominal viscera.

The similarity of its course to that of uterine sepsis may be misleading, as can be seen from the experience of Esselbruegge,[33] who reports a fatal case in which pyelonephritis was found at autopsy. Acute cases resemble appendicitis so closely that the diagnosis is beset with difficulty. A moderately high white count, purulent urine, remittent pyrexia and transient pain, relatively infrequency of spasm of the rectus, and tenderness at the costo-vertebral angle, which is rare even in retrocecal appendicitis, serves to favor the diagnosis of pyelonephritis. A mild attack may simulate cystitis. The presence of caudate cells in the urinary sediment should help to differentiate them, although Cabot[34] believes their source cannot be identified with any degree of certainty. In cystitis the turbidity of the urine usually clears on standing by precipitation, while in pyelitis it persists as a hazy milkiness.

Bransford Lewis[35] and Chute recommend catheterization of the ureters as an aid to diagnosis, while Hoffman[36] advises against it.

The common complication is abortion, and this occurs only in a small percentage of the cases. Fetal death in utero is rare. The writer has seen it but once—the victim being one of twins.

Pyemia and septicemia have occurred only in the fatal cases. In one of the writer's cases definite signs of meningitis were noted 48 hours after spontaneous labor.

Surgical kidney is also a common complication. Cumston has collected from the literature 11 cases, Swift reports 5, and Le Wald,[37] Craigin and the writer 1 each.

Hydronephrosis from continued pressure on the ureter with valve-formation at the renal pelvis is considered by Sir Frederick Treves[38] as a possible permanent injury. Recurrence of the disease in the same and subsequent pregnancies is fairly common. The morbidity in the infants of mothers who have had several attacks is considerable. Poynton[39] reports a case of pyelonephritis of a new born infant whose mother had several attacks of the same disease during pregnancy.

The treatment must be for the most part symptomatic, and should be continued for some time after the attack appears to have ceased. Absolute rest in bed is essential. Posture is believed to hasten recovery. Elevation of the affected kidney, either by placing the patient in the latero-prone or semi-recumbent position, favors drainage. The writer has used a small firm

pillow such as used in operations on the kidney by the lumbar route, placed beneath the loin on the sound side to further increase the freedom of the pelvis.

The pain should be controlled by morphine or codeine,—given subcutaneously if there be much vomiting. An ice-cap to the loin often gives relief. A thorough catharsis should be established early, preferably by the use of calomel and saline. Fluids,—especially cream of tartar water,—should be forced to the extent of three or four litres a day. Sweating should be promoted to lessen the burden of the unaffected kidney. The diet should be extremely simple, consisting of milk, which should be skimmed if there be any digestive disturbance. Lactone buttermilk ought to prove useful.

Urinary antiseptics have been used with universal satisfaction. Hexamethylenamin or one of its equivalents, cystogen and urotropin, given in 5 grain doses at three or four hour intervals with a glass of water is the most valuable. In the writer's experience it acts more effectively when combined with an equal amount of lithium citrate. Helmitol, a derivative, is also strongly recommended. Churchman[40] believes that these substances simply inhibit the growth of bacteria in the urine without killing them. Kastner recommends that potassium citrate up to 40 grains a day be used in conjunction with urotropin, and Hicks[41] advises the use of potassium iodide. Reed and Rovsing have used salol with good results. Many of the cases in this series have been treated by a method suggested by Dr. Newell with remarkably prompt results. They were given urotropin and lithium citrate in 10 grain doses at four hour intervals for 48 hours. Sodium benzoate in 10 grain doses at two hour intervals is then substituted and continued until the patient complains of a burning sensation in the region of the kidneys; the first combination is then at once resumed.

The change in the degree of acidity of the urine brought about by this medication renders it an uncongenial medium for the growth of bacteria, especially the colon bacillus, and the infection quickly subsides.

Drainage of the kidney by retained catheter is advocated by Rovsing in severe cases. Pilcher has instilled 1 dram 25% argyrol into the pelvis in six cases with good results, but advises this treatment only in cases persisting more than ten days.

The use of autogenous vaccines in colon bacillus infections has met with some success. Williams, Craigin and Newell[42] conclude that their use may result in temporary cure of the symptoms, but not of the bacteruria, and that their value is much limited. Hicks,[43] Dodge, Kastner, Briscoe and Routh[44] report cases in which relief of the symptoms follow the injections. An initial dose of 30 to 50 millions is given and repeated once a week, the increase in the dosage being governed by the severity of the symptoms.

Obstetrical interference is seldom necessary. Persistent cases late in pregnancy should be delivered. Markoe[45] changed the presentation of the fetus from the vertex to breech by external bi-polar version in two cases, the method being successful in but one.

When definite signs of a surgical kidney are present, nephrotomy for drainage of the organ should be performed. The danger of delay in operating is considerable, the septic process becoming general unless drainage is promptly established. In the opinion of the writer whenever the attack persists without remission for 72 hours or more, especially in the presence of a high pulse rate, the kidney should be drained by the lumbar route in the majority of cases. Roswell Park[46], Balloch[47] and others advise decapsulation in every case where it is necessary to drain the organ, and this procedure ought to contribute much to the conservation of its function. The mortality following nephrotomy is much less than after nephrectomy, Pousson[48] finding 21% of deaths in 600 cases of the latter operation. Kelly[49] has reported 3 nephrectomies with recovery in infections due to the colon bacillus.

The prognosis in pyelonephritis is good for recovery in most of the cases treated promptly. Cases developing in the early months of pregnancy have a tendency to recur and are likely to abort. Meek[50] has reported several cases that showed recurrence in succeeding pregnancies.

Careful attention to prophylaxis, special emphasis being laid upon the regulation of the excretory functions of the skin, the kidneys and particularly the intestine, will do much to prevent the occurrence or recurrence of the disease. Austin Flint's[51] suggestion that the urine be examined weekly during the last six weeks of pregnancy should be followed in every case.

The duration varies in all types from a few days to weeks. Mixed infections generally run a protracted course. The outlook is unfavorable in cases that continue without remissions for more than three or four days. A tuberculous lesion of the kidney may not interfere with pregnancy as shown by Sondern's[52] cases and one in the present series where only one kidney was present. The maternal morbidity is considerable, especially in long drawn out cases. Vineburg and Hicks regard the prognosis for the child poor, and when one considers the likelihood of premature labor and the degree of fetal intoxication which is present in severe infections, their conclusion seems amply justified.

From the study of the cases in this series and a review of the literature, these conclusions may be drawn:

1. Infection of the pelvis of the kidney invariably involves the parenchyma.
2. Owing to its anatomical relations the right kidney is the more vulnerable.
3. The disease is much more frequent than supposed; the writer estimates that it occurs once in every 3000 cases.
4. Malnutrition, constipation, and tonicity of the abdominal muscles, are predisposing factors;

tendency to renal abnormalities on the right, dextro-torsion of the uterus and predominance of positions in the right oblique diameter favor the infection of the right kidney.

5. Infection by the colon bacillus is the most common type, direct transmission through the intestinal walls being the probable mode of entrance.

6. The pathological picture shows the pelvis and ureter dilated with pus and miliary abscesses in and beneath the cortex.

7. The cardinal symptoms are smarting micturition, chills, fever, nausea and vomiting, pain in the loin and elevation of pulse. The urine is turbid, purulent and albuminous.

8. Tenderness in the region of the kidney is always present. Enlargement of the organ can be demonstrated in about one-fifth of the cases.

9. Abortion and surgical kidney are the most common complications.

10. The diagnosis can generally be made on physical signs and urine analysis, the differentiation from appendicitis presenting the greatest difficulty.

11. Prognosis is usually good for the mother and less favorable for the child.

12. Treatment by rest, sedation, catharsis and urinary antisepsis has met with success. The use of vaccines and pelvic lavage, if of any real value at all, entails dangerous delays and, being extremely technical, is beyond the scope of the rank and file of the profession. Early operation in cases that assume a surgical aspect is to be strongly recommended.

REPORT OF CASES.

In reporting these cases detailed accounts of their courses, urinalyses and treatment has been avoided. In all but two of the cases the urine was constantly acid, albuminous and purulent. Except where operative interference was necessary, the same line of medical treatment has been followed throughout.

CASE I. H. K. II Para. Admitted to Boston City Hospital May 24, 1904, in fourth month of pregnancy with pain in right flank, burning micturition and fever of one week's duration. The right kidney was tender and easily palpated and the urine was typical. She was delivered by breech extraction at term at the Boston Lying-in Hospital. In 1906 she had a trachelorrhaphy and a ventrofixation at the Massachusetts General Hospital. She entered the City Hospital Dec., 1908, seven months pregnant, with retention of urine and symptoms as before, and was discharged relieved in two weeks. She was readmitted in Feb., 1909, with recurrence. While in the hospital she started in labor and a Caesarian section was done on account of the condition of the cervix and lower uterine segment. Her renal symptoms cleared up during convalescence.

CASE II. M. M. Age 24. III Para. Admitted to hospital Jan. 30, 1906, in fifth month of pregnancy with fever, frequent chills, vomiting and burning micturition of five days' duration. W. C. 13,000, dullness and tenderness throughout right flank. As symptoms increased in severity, an exploratory laparotomy was done and a distended gall-bladder was drained without relief of symptoms, which later became localized in the right kidney. The patient was discharged well four weeks after admission.

CASE III. M. K. Age 34. VIII Para. Admitted to hospital March 22, 1906, in the seventh month of pregnancy, having had intermittent pain in the right loin, with chill, fever and vomiting for one week. The right kidney was tender on palpation and the urine characteristic. As the symptoms failed to improve under treatment manual dilatation and delivery was performed March 14. W. C. 26,800. Patient made an uninterrupted recovery.

CASE IV. A. K. Age 24. II Para. Admitted to hospital Sept. 23, 1906, one month after normal delivery. During the third week of the puerperium she began to have pain in the right flank, chills and intermittent fever,—the symptoms steadily increasing. There was marked tenderness in the region of the right kidney, and the urine was characteristic. She was discharged relieved after one week of treatment.

CASE V. T. D. Age 22. I Para. Admitted to hospital March 26, 1907, one week after a miscarriage at four and one-half months. Chills, fever, vomiting and burning micturiton for two weeks. Right kidney tender; W. C. 14,000, considerable pus in the urine. Patient practically well one week after admission. Patient died suddenly April 6, with symptoms of acute cardiac dilatation.

CASE VI. A. R. Age 28. II Para. Admitted to hospital Sept. 30, 1907, in sixth month of pregnancy. She had had severe pain in right flank, with fever, chills, vomiting, frequent painful micturition for four days before admission. Spasm and tenderness in the right flank and at the costo-vertebral angle, W. C. 14,000. Discharged well on Oct. 12.

CASE VII. C. M. III Para. Admitted to hospital March 6, 1908, at full term. An abdominal Caesarian section was performed for complete placenta praevia in which the patient made an uninterrupted recovery. Two weeks after discharge from hospital she was readmitted with symptoms of pyelonephritis in the left kidney. The right had previously, in 1906, been removed for tuberculosis. Frequent microscopic examinations of a very purulent urine failed to reveal the tubercle bacillus. The patient was discharged relieved in two weeks.

CASE VIII. M. G. Age 20, I Para. Admitted to hospital March 30, 1908, in sixth month of pregnancy for pain in right loin, chills, fever, vomiting and burning micturition of six days' duration. There was tenderness over right kidney and at costo-vertebral angle. W. C. 32,000, urine scanty during attacks of pain, rising to 40 ounces during remissions. Patient was discharged relieved April 22d.

CASE IX. I. W. Age 20. II Para. Admitted to hospital May 13, 1908, with pain in left lower quadrant, fever and frequent painful micturition. Tenderness in left loin and marked spasm and tenderness in right loin and at costo-vertebral angle.

There was considerable pus in the urine. Patient was discharged relieved May 23, but had similar attacks at intervals until delivery at term. During the next succeeding pregnancy she had several attacks in the last two months, and symptoms referable to the right kidney, until delivered at term by internal podalic version for prolapsed cord. She also gave a history of pyelonephritis during her first pregnancy which terminated in premature labor at seven months.

Case X. H. L. Age 21. I Para. Admitted to hospital July 20, 1908, having had pain in right flank, chills, fever and vomiting for five days before entrance. Tenderness and spasm just above McBurney's point, W. C. 12,200, uterus enlarged to size of seven months pregnancy. Suspecting appendicitis a laparotomy was performed and the appendix, gall-bladder and pelvic viscera were found to be normal. Symptoms disappeared three days after delivery. Patient was discharged well Aug. 23, the urine still containing a small amount of pus.

Case XI. C. B. Multipara. Admitted to hospital Aug. 10, 1908, on the twelfth day of the puerperium. For three days she had had pain in the right loin with fever and vomiting, marked tenderness over the right kidney, W. C. 26,000. The symptoms subsided on the fifth day, abruptly following the avoiding of a large quantity of purulent urine. Discharged well Aug. 24.

Case XII. M. C. Age 30. II Para. Admitted to hospital Aug. 26, 1908, three weeks after normal delivery on account of chills, fever, vomiting, sharp pain in the left loin and painful micturition. The left kidney was readily palpable and the urine purulent. Discharged relieved Sept. 13.

Case XIII. E. C. Age 32. I Para. Admitted to hospital Sept. 7, 1908, seven months pregnant. Pain in left flank, fever, vomiting and burning micturition for three days. Considerable tenderness, fullness and spasm over left kidney. Symptoms ceased five days after admission. Discharged well Sept. 15.

Case XIV. H. F. Age 21. I Para. Admitted to hospital Sept. 29, 1908. Patient had had pain in right loin, chills, fever and burning micturition since a few days after instrumental delivery at term six weeks before admission. Tenderness and rigidity in both flanks, more marked on the right. Urine contained considerable pus. Patient discharged well Oct. 8th.

Case XV. S. L. Age 26. Multipara. Admitted to hospital Oct., 1908, last month of pregnancy, on account of pain in right flank, chills, vomiting and painful micturition of three days' duration. Marked tenderness and spasm over right kidney. W. C. 12,000. As the patient's symptoms increased alarmingly, an internal podalic version was performed. Symptoms promptly cleared up after delivery. Patient was discharged well Nov. 9th.

Case XVI. B. L. Age 31. VIII Para. Admitted to hospital Nov. 7, 1908, in fifth month of pregnancy, on account of pain in right flank, chills, fever, burning micturition of three weeks' duration. Right kidney tender. Symptoms subsided on the fourth day and the patient was discharged well Nov. 17th, but returned with another attack one month later.

Case XVII. E. F. Age 32. XIV Para. Admitted to hospital Nov. 25, 1908, five days after delivery of an eight-months' macerated foetus. For two days had had pain in right loin, fever and vomiting. Right kidney easily palpated. W. C. 25,000. Urine contained numerous granular casts and considerable pus. The kidney remained large for ten days, the mass suddenly disappearing simultaneously with the appearance of a large amount of pus in the urine. There was tenderness in the region of the left kidney throughout the attack. Patient discharged relieved Dec. 19th.

Case XVIII. D. T. Age 33. III Para. Admitted to hospital Jan. 17, 1909, five months pregnant. For one week had had pain in back and right flank with chills, fever and painful micturition. Considerable spasm and tenderness over the right kidney. Patient remained in the hospital two months during which time she had frequent mild attacks of pain and pyuria. W. C. 15,000. Discharged well March 15. Entered the Lying-in Hospital with similar symptoms in April and was discharged well in a week. Was delivered normally May 9th. Had another attack of pyelonephritis May 10th, which lasted a week. Discharged wall May 25th.

Case XIX. C. T. Age 21. II Para. Admitted to hospital March 3, 1909, five months pregnant. Had an attack of pain in the right flank with scanty turbid urine, and burning micturition six weeks ago, the symptoms persisting for two weeks. Three days ago a similar attack began. Pulse 120. Temp. 103. W. C. 17,000. Marked tenderness and spasm over right kidney. Spontaneous labor began three days after entrance. Owing to the patient's condition dilatation and delivery was done under ether. There were twin foetuses, one occupying the left position being macerated for about a week. The patient's condition steadily grew worse, and she died of septicemia March 13th.

Case XX. N. H. Age 27. VIII Para. Admitted to hospital March 4, 1909, in sixth month of pregnancy, having had pain in the right loin, chills, fever and vomiting at intervals for seven weeks. Painful micturition and cloudy urine during each attack. Marked tenderness in right flank. Patient had two attacks while in the hospital with sudden rise of temperature. Discharged relieved on March 17th.

Case XXI. I. W. Age 25. II Para. Admitted to hospital March 13, 1909, seven months pregnant. Pain and tenderness in left flank, burning micturition and constipation for five days. Considerable tenderness in left loin. Urine markedly purulent. Symptoms subsided in 24 hours. Discharged against advice March 15th.

Case XXII. E. S. Age 31. VIII Para. Admitted to hospital Sept. 26, 1909, in eighth month of pregnancy. Pain and tenderness in right loin, chills, fever and vomiting for three days. Had a similar attack two weeks ago in the hospital. Marked tenderness in right flank. W. C. 18,300. Symptoms persisted for two weeks with a chill at mid-day, followed by pain and rising temperature. The membranes were ruptured accidentally Oct. 9,

during packing of the cervix to induce labor. Following this the patient had no further attacks of renal pain. She was delivered normally Oct. 11th, and discharged well Oct. 24th.

CASE XXIII. H. D. Age 20. I Para. Admitted to hospital Oct. 22, 1909, to the Medical Service. Was later transferred to the Surgical Service for acute appendicitis, and again to the Gynecological Service for pyelitis. She had had pain in the right lower quadrant, vomiting, fever, and burning micturition for three weeks. Uterus enlarged to size of six months pregnancy. Marked tenderness over right kidney. W. C. 30,000. Labor induced by cervical packing Oct. 26, and terminated by spontaneous delivery of a breech Oct. 27. Symptoms cleared up promptly after delivery. Discharged well Nov. 13th.

CASE XXIV. M. R. Age 16. I Para. Admitted to Lying-in Hospital Nov. 18, 1907. Delivered normally at term Nov. 19th. Four days later pain and tenderness in right loin, temperature 101, W. C. 6000, urine purulent. Right kidney tender on palpation. The attack subsided in five days.

CASE XXV. M. C. Age 19. I Para. Admitted to hospital March 29, 1908. One week after low forceps operation an attack of pain in right loin, and painful micturition, temperature 104, W. C. 8000. Marked tenderness over right kidney. Symptoms disappeared in five days.

CASE XXVI. C. R. Age 39, XI Para. Admitted to hospital March 29, 1909, from Massachusetts General Hospital. Pain and tenderness in right loin, fever, and burning micturition of three weeks' duration. Considerable tenderness over right kidney and at costo-vertebral angle. Patient seven and a half months pregnant. Labor induced March 30th on account of symptoms by means of a Vorhees bag, and high forceps delivery performed March 31st. Symptoms slowly abated. Patient discharged April 25th.

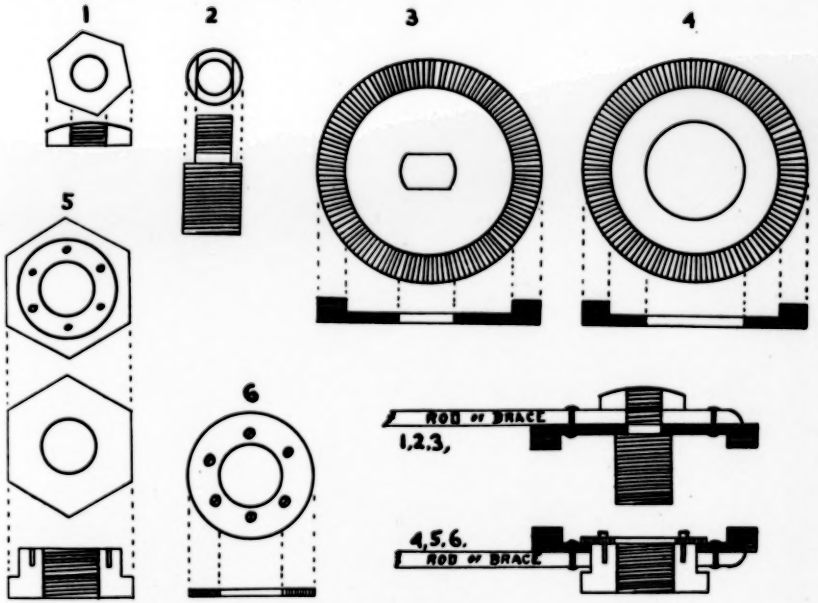
CASE XXVII. F. H. Age 21. I Para. Admitted to hospital Sept. 22, 1909. Diagnosis of hydraminos. Pain in both flanks, especially the right, frequent burning micturition, scanty cloudy urine for three weeks before admission. Marked tenderness over the right kidney. As the patient was in labor dilatation of the cervix was promoted by the introduction of the Vorhees bag. Delivery was normal. There was no recurrence of symptoms until the fourth day of the puerperium, when the right kidney was palpable and tender, and the urine very purulent. Symptoms had disappeared Oct. 2, and patient was discharged Oct. 8th.

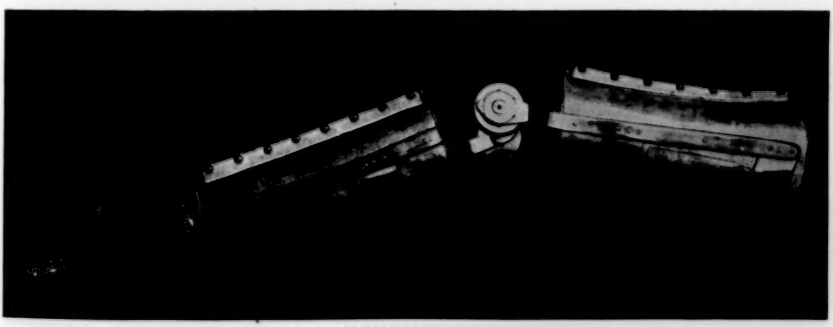
CASE XXVIII. B. W. Age 24. III Para. This patient had a resection of both ovaries and a ventro-suspension performed at the Boston City Hospital Oct. 16, 1908. Eleven days later she had an attack of right-sided pyelitis. She applied for treatment at the Out-patient Department of the Lying-in Hospital Aug., 1909, in the seventh month of pregnancy on account of pain of the right loin and smarting micturition. The kidney was tender and the urine contained pus. She responded quickly to treatment, but had another attack during the puerperium from which she recovered in a few days.

CASE XXIX. E. P. Age 29. II Para. Admitted to hospital Oct. 10, 1909. Had had sharp pain in right flank for ten days. Had been in bed four days on account of malaise, fever and chills. Frequently passed purulent concentrated urine. Considerable tenderness over right kidney and at costo-vertebral angle. Six months pregnant. W. C. 11,000. Delivered by precipitate labor Oct. 11th. Renal symptoms with the exception of pyuria, had disappeared Oct. 20th. On that day patient showed marked confusion and excitability, and her condition closely resembled typhoid fever. Pulse 120 to 140, temp. 99 to 101, W. C. 7500. Widal reaction negative. Urine contained a large amount of pus and the culture showed a pure growth of colon bacillus. Patient grew steadily worse, and died with symptoms of meningitis Oct. 21st.

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2
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ROD or BRACE
1,2,3,
4,5,6.
ROD or BRACE



AN ADJUSTABLE KNEE SUPPORT.

BY H. W. MARSHALL, M.D., BOSTON,

From the Orthopedic Department of the Massachusetts General Hospital.

Patients with chronic joint troubles not infrequently have contractures that for some reason cannot be corrected by surgical measures or forcible manipulations, or they have recurrent contractures after previous treatments; and such individuals need additional mechanical supports owing to their deformities.

Severe progressive cases of arthritis deformans, for example, are especially liable to show stages in which mechanical aids are beneficial; and the device figured here for knee joints seems to possess the following advantages in such instances.

It is comfortable because it is made upon a plaster model of the patient's leg and therefore fits exactly. It can be adjusted very readily and accurately by the patient from day to day in any degree of flexion or extension that is wished; and it can be employed simply as a splint to protect a sensitive knee joint when adjusted to the position of greatest ease. Or it can be used to increase gradually flexion or extension by adjustments that exert slight continuous pressures in the desired direction. For illustration, when a contracted knee is placed in as complete extension as possible, the patient being seated in a chair with the heel resting upon the floor, and pressure is exerted backward upon the patella with the hand until a slightly forced position is gained, this advantage can be permanently maintained if the nut which interlocks the two toothed discs of the support is simply tightened before relieving the hand pressure.

It can be used as a safe support when walking because the joint between the two discs is exceptionally strong when they interlock, and it can be worn inconspicuously under the clothing.

It may be of use after surgical or manipulative treatments as well as when employed independently. It does not bring increased irritation from unusual pressure upon the patella and underlying articular structures as some knee supports do.

Patients can adjust the brace frequently themselves, a feature that furnishes them with something to do to assist themselves.

Its limitations are that it does not remove the pressure from the articular surfaces, and cannot be used as an ambulatory device where all such mechanical irritation has to be avoided. Also it has the financial drawback of every carefully made support of being somewhat more expensive than rougher, less nicely fitted ones.

Description of the Support.

It consists essentially of two lateral steel rods. One is placed upon the inner aspect of the leg and the other upon the outer side, and both run from beneath the heel to the upper part of the thigh. They are hinged at the knee, and are joined to each other across the posterior side of the thigh and lower leg, with steel straps. Two model, one around the thigh and one around the broad cuffs of leather moulded to fit the plaster calf, are fastened to the metal rods and grip the leg firmly, binding the support to it.

The lower end of the rods fit into metal sockets in the heel of the shoe.

The adjustable joint at the knee is made of steel-toothed discs that are shown in actual size in the accompanying diagrams. Each disc is provided with a ring of radially arranged teeth at its periphery; and each is riveted to a divided, overlapping end of one of the rods of the support, where the ends enter into the adjustable joint. There are four discs in the complete brace arranged in two pairs corresponding to the pair of divided rod ends on each side of the knee, and the discs are placed face to face so that their teeth interlock when they are approximated.

Each disc has a hole in its center, and holes in the brace rods to which the discs are riveted permit a bolt to pass through both discs and both rod ends. A bolt clamps all firmly together in any desired position when an adjustable nut (5) is tightened.

In order to gain the additional feature of having the discs pulled apart and held conveniently for readjustments when the nut is loosened, as well as having them bound together firmly when it is tightened, the following conditions are necessary:

The central hole of one disc (4) is made larger than the hole in the other (3), and the adjusting nut (5) which clamps them together is provided with a projecting collar that fits into the circular opening accurately and extends through it to the other side of the disc. A flange (6) is screwed to this projecting collar of the nut, preventing it from being separated from the disc, yet readily allowing turning in the central circular opening of the latter. The diagram (4, 5, 6) shows assembled upon the rod of the brace the disc, and the nut with its collar and flange.

The other disc (3) has a central aperture that is flattened purposely upon two sides, and into which the central bolt (2) fits so that it is held firmly without revolving, when the small nut (1) is permanently tightened upon the other side of the interposed disc and brace rod. The diagram (1, 2, 3) shows this bolt, disc and nut assembled in position.

The central axis or bolt (2), which is long enough to go through the entire joint of the brace, has a long, cylindrical section of large diameter at one end provided with a thread upon which the adjusting nut advances or recedes as the latter is tightened or loosened. Also the bolt has a narrow flattened middle portion which fits into the flattened aperture of the disc to prevent rotation as has been stated.

The small nut (1), screwed upon a short threaded section at the other end of the axis binds the toothed disc firmly against the large cylindrical part, where it forms a shoulder next to its middle flattened section. This shoulder of the bolt helps to push the two discs apart when the large adjusting nut with its flange pulls upon the other half of the joint.

It is apparent that when the two halves are brought together and the adjusting nut is screwed upon the thread of the bolt, that the two discs become firmly locked, and that they are pushed and pulled apart and held separated in a positive way when the nut is unscrewed.

The finished knee support as it appears in a photograph is shown in the last figure.

Book Reviews.

The Mechanistic Conception of Life. Biological Essays by JACQUES LOEB, M.D., PH.D., SC.D. Chicago: The University of Chicago Press. 1912.

This volume, consisting of ten addresses and papers written for various occasions, represents a popular presentation of the results of the author's investigations in physiology, biogenesis, parthenogenesis and biochemistry, and constitutes "an attempt to analyze life from a purely physico-chemical viewpoint." Denying teleology, he aims by experimental observation to establish the thesis that the processes of animal and of vegetable life are essentially the same and that their phenomena are in reality all due to chemical reactions, chiefly in the nature of oxidation. On this basis he seeks to explain not only the process of fertilization, the signification of plant and animal tropisms, the pattern adaptation of fishes and the mechanism of vision, but also the psychologic processes of the central nerve system, which he considers due to the activity of the associative memory, or, as he terms it elsewhere, associative hysteresis.

As an exponent of the modern experimental method in science, Lr. Loeb is skillful and convincing. Every one of the facts which he demonstrates with such nice exactitude is indisputably true. The error lies in the interpretation. In his enthusiasm over the seemingly miraculous revelations of science he forgets that there are some doors to which it finds no key. Chemical process undoubtedly accounts for intellectual phenomena, but it does not explain the content of thought.

Dr. Loeb justly disparages most metaphysical speculations. It should be remembered, however, that the physician may fall into an error conversely analogous with that of the metaphysician. There is being poured out today a mass of so-called scientific research which after a few centuries will be recognized to be as profitless as the philosophic disputations of medieval scholiasts. This is not saying that all such research does not serve a purpose. It is the nature of the human mind to win truth chiefly by winnowing it from an intolerable deal of chaff. The difficulty lies in the discrimination between that which is important, if true, and that which, though true, is unimportant.

Dr. Loeb's concept of life is entirely justifiable from its own point of view, but that point of view is limited. It is not to be criticized because it leads to scientific determinism, since determinism is the conclusion reached by many other philosophies. Moreover, it affords an entirely adequate ethics; indeed the ethics of science seems in many respects superior to other forms, because it is rational. The failure of scientific, physico-chemical determinism is its inability to account for the significance of the life-processes whose phenomena it explains. The mechanistic conception of life, though correct, is inevitably incomplete.

A Manual of Clinical Chemistry, Microscopy and Bacteriology. By Dr. M. KLOPSTOCK AND DR. A. KOWARSKY, of Berlin. Only authorized translation from the last German edition. Thoroughly revised and enlarged. Illustrated with 43 textual figures and 16 colored plates. New York: Rebman Company. 1912.

The German original of this book was intended primarily as a laboratory manual for practitioners, and was therefore written from the point of view of its practical clinical application. For the purposes of this English version the sections on typhoid fever and on the meningococci have been entirely rewritten, and new sections have been added on the spirocheta pallida and on the Wassermann reaction. The style of the translation is in the main idiomatic and flexible, within the limits afforded by so technical a subject-matter. The colored illustrations are particularly good. The routine methods of examining the various body fluids, excretions and secretions are clearly described, and the processes of laboratory diagnosis explained. The book should have a considerable usefulness as a convenient manual for the aid of general practitioners.

Landmarks and Surface Markings of the Human Body. By L. BATHE RAWLING, M.B., B.C. (Cant.), F.R.C.S. (Eng.). With 31 illustrations. Fifth edition. New York: Paul B. Hoeber. 1912.

The fourth edition of this admirable work was reviewed in the issue of the JOURNAL for June 1, 1911 (Vol. clxiv, p. 794). No important alterations have been made in the text of this fifth edition, but the 24 full-page plate illustrations have been improved. There is a very convenient terminal table of the ossification and epiphyses of the bones of the upper and lower extremities.

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SUSHRUTA AND THE SURGERY OF THE ANCIENT HINDUS.

IN the issue of the *Lancet* for Oct. 12 is an editorial review of a recently published English translation, by Karivaj Kunja Lal Bhishnagratna, Calcutta, of the original Sanskrit text of the "Sushruta Samhita," or "Compendium of Sushruta," one of the very early Hindu surgeons. His exact date is somewhat uncertain. Nargajuna, the writer who edited the text from which the present translation is made, flourished during the first quarter of the third century B. C., and Sushruta must have been much his senior.

There are two Indian traditions relative to the origin of the knowledge of medicine. One affirms that this knowledge was delivered by the god Indra to the sage Bharadvaja, and by the latter to Atreya; the other that Dhanvantari received it from Indra and transmitted it to Sushruta. The two traditions doubtless represent later variants of a common legend. In his work on the "Medicine of Ancient India," Dr. A. F. R. Hoernle cites from the "Atharva Veda" evidence bearing on the great antiquity of both Atreya and Sushruta, who are indubitably historic characters and whom he regards as probably contemporaries.

"The date of the "Atharva Veda" is not known, but it belongs to the most ancient or primary Vedic literature of India, and cannot be placed later than the sixth century B. C. It contains a hymn on the creation of man, in which the several parts of the skeleton are carefully enumerated in striking agreement with the system of Atreya. The translator of the "Samhita," Kaviraj Kunja Lal, after reviewing the evidence of writings and tradition, does not hesitate to place the original writing of the "Sushruta Samhita" at least two centuries before the birth of Buddha, but is ready to admit that the final recension by Nargajuna was made about the second century B. C. The question of the relation of Indian medicine to that of the Greeks suggests itself. Pythagoras is by some identified with Buddhagurus, a Buddhist missionary. We know that with the birth of Buddhism, Buddhist Sramanas (missionaries) were sent out to Greece, Asia Minor, Egypt, and other distant countries, to preach their new religion. We know also that two Greek physicians —Ktesias, about 400 B. C., and Megasthenes, about 300 B. C.—visited or resided in North India. If there were any borrowing on the part of the Indians from the Greeks it must have taken place in the time of Hippocrates and his immediate followers—that is to say, in the second half of the fifth century B. C., but this cannot have influenced the teachings of Sushruta, to whom there is assigned an earlier origin."

That the surgical teaching of Sushruta should have been in some respects primitive is perhaps not surprising. The knowledge of anatomy in those days was limited and difficult of acquirement.

"When it is remembered that only the bodies of young children were available for dissection to the early Indian anatomists, for the Hindu Shastras enjoin that "the bodies of persons more than two years old shall be burned," certain of the osteological anomalies of the Samhita are accounted for. There was also the intention on the part of the redactors to make fact agree with authority, and interpolations doubtless took place. Hence we have a statement in the "Samhita," "There are 360 bones in the human body, so it is in the Vedas, but the science of surgery recognizes 300 skeletal bones." Sushruta had what some may regard as sound views on medical politics, and his ethics were the highest, for he says, "A physician experienced in his art, but deficient in the knowledge of the science of medicine, is condemned by all good men as a quack, and deserves capital punishment at the hands of the King." Again, "The patient who may mistrust his own parents, sons, and relatives should repose an implicit faith in his own physician, and put his own life into his hands without the least apprehension of danger; hence a physician should protect his patient as his own begotten child." But it is in the chapters on reparative surgery, on hygiene and preventive medicine that he shines. His pages bear comparison with the most up-to-date treatises on those subjects. "A surgeon well versed in the knowledge of surgery should slice off a patch of living flesh from the cheek of a person devoid of ear-lobes in a manner so as to have one of its ends attached to its former seat. Then the part

where the artificial ear-lobe is to be made should be slightly scarified with a knife and the living flesh, full of blood and sliced off as previously directed, should be united to it so as to resemble a natural ear-lobe in shape." "He falls an easy victim to internal and external diseases who drinks of, or bathes in, a pool of water which is full of poisonous worms, or is saturated with urine or fecal matter or is defiled with germs of vermin or decomposed animal organisms, or is covered over with the growth of aquatic plants, or is strewn over with withered and decomposed leaves, or which in any way is rendered poisonous and contaminated, as well as he who drinks and bathes in the freshly collected water of a pool or a reservoir during the rains."

If Sushruta's anatomy were sometimes erroneous, his hygiene would surely have done credit to many a later and more benighted century.

"With the help only of a few short extracts it is possible to convey a rough idea of the advanced state of medical and surgical science in those early days in India when Royal Universities existed at Benares and Taxilla. The serious attempt which was made to systematize the knowledge possessed, and the form and variety of the surgical instruments in use are indications that the Indians had attained a high degree of efficiency in these sciences, which we must suppose they subsequently lost, for we do not see any indications of its existence among the practitioners of native (Ayurvedic) medicine today."

Not all alleged progress is really an advance from the knowledge and methods of an earlier age. In India, as in other centres of civilization, a long period of regression followed the ancient development of medical science, until modern medicine was brought back by another race. Hence there is to Occidentals, as well as to Orientals, the greater interest in this rescue of Sushruta and his writings from oblivion as evidence of the former advanced estate of Hindu medicine and surgery.

THE TRANSMISSION OF POLIOMYELITIS.

IN another column (p. 672) of this issue of the JOURNAL will be found reprinted in full the text of an important recent communication by Rosenau and Brues on the experimental transmission of poliomyelitis. The stimulus given to the investigation of this disease by the Massachusetts State Board of Health revealed significantly the associations of its epidemics with localities where there are farm animals, some of which are subject to similar paralytic affections, and suggested the more intimate association of the two through an intermediate insect host serving as an agent in transmitting the virus of the infection from animals to man. This possibility Rosenau and Brues, by their researches, of which the paper in question is a preliminary note, converted into an almost convincing probability. They apparently succeeded in transferring "the virus of poliomyelitis from monkey to monkey through the bite of the stable fly, *Stomoxys calcitrans.*" They consider, further, that this is not merely a mechanical but a biologic transference, "requiring a period of extrinsic incubation in the intermediate host," analogous to that of *Plasmodium malariae* in the mosquito.

The importance of these observations is twofold. In the first place, though they do not determine the nature of the infective organism, they do throw light on its probable biologic history. In the second place, by indicating the probable mode of transference of the disease to human beings, they place in our hands knowledge which is likely to give us effective means of prevention, as in the case of malaria and yellow fever, filariasis and trypanosomiasis. A disease whose etiological agent is unknown may be checked by destruction of the agent which transmits it to man.

It remained for repetition of these experiments and confirmation of the results to establish the observations of Rosenau and Brues as scientific facts. Such confirmation has been recently afforded in a paper by Anderson and Frost, published in the weekly report of the United States Public Health Service for Oct. 25. The authors, after the original announcement by Rosenau in Washington, undertook to repeat the conditions which he reported. As a result of their experiments, "three monkeys exposed daily to the bites of several hundred *Stomoxys*, which at the same time were allowed daily to bite two intracerebrally inoculated monkeys, developed quite typical symptoms of poliomyelitis eight, seven, and nine days respectively from the date of their first exposure."

This confirmation seems conclusive that poliomyelitis may be transmitted to monkeys through the agency of *Stomoxys calcitrans.* It remains to be determined whether the disease is also thus transmitted to man and whether this is its usual or only mode of transmission. These are questions which further experiment and observation

should surely solve. This supplementary work, like that of confirmation of the original experiments, is work of importance and seriousness. But the fundamental credit for this demonstration in scientific and practical preventive medicine belongs to those who suggested, conceived, planned and executed the original research.

THE WAR IN THE NEAR EAST.

The outbreak and course of the present war between Turkey and the allied Balkan states demonstrates that we are living in times when political and racial as well as scientific history is being made. Brief though the war has been thus far, it bids fair to alter the map of Europe as it has not been changed since the days of Napoleon. Coming as it does, too, close on the heels of the recent war between Turkey and Italy, it serves like the latter to revive many classic and historic recollections. The Turkish troops now massed against the Greeks at Scutari are descendants of the barbarians whom Xerxes led against the Athenians to defeat at Marathon and Salamis. The regions of Macedonia and Thrace where now the hostile armies are encamped are ancient battlegrounds since the days of Philip and Alexander, and have been fought over again and again by foreign hosts and by representatives of the same races as those contending there today. The islands of Lemnos and Thasos, which have been seized by the Greeks, were theirs of old, and as full of mythologic connotation as other of "the isles of Greece" now newly occupied by Italy as trophies of her military and naval supremacy.

The suggestions and reminiscences of this war, however, are not wholly classic. Many of the names suggest the more recent and sinister days of the Crimea. Scutari itself is indissolubly linked with all that was brightest in that dark campaign, for it was there that Florence Nightingale first showed the world the power of woman in hospitals and on the battlefield, and raised the occupation of nursing to the rank of a profession.

In its medical relations the war between Turkey and the Balkan states is not without active interest. Military surgery is always affected by the latest progress in explosives and other engines of war; and from the numbers now engaged, and the severity of the fighting, it would seem that there must be a large amount of emergency and field work. Unfortunately it appears that none of the contending armies is adequately equipped in its medical service, but must depend to considerable extent on the aid offered out of mercy by other Christian nations. Commenting on the medical aspects of the situation, an editorial in a recent issue of the *Medical Press and Circular* speaks as follows of the unprepared condition of the allies and of the work of the British Red Cross in their alleviation:—

"The conduct of a war in which no less than five armies are concerned must necessarily entail a great loss of life and great sufferings to the sick and wounded. As a matter of fact, it is generally understood that the revolting nations are none of them properly supplied with a fully equipped and adequate army medical corps. Indeed, in the case of first-rate European powers it has always invariably been necessary to supplement the army medical arm by the aid of voluntary red-cross organizations. In the case of Turkey, Greece and the Balkan nations the need for special help in that direction is peculiarly great. Owing to the remoteness of the scene of conflict, to the mountainous nature of much of the ground to be traversed, to the uncouth and even semi-barbarous ways of some of the combatants, to their little-known language, and to other racial and religious factors, the task of rendering them aid is beset with unusual difficulties. Happily it is not the way with our countrymen to discuss details of that kind when lives are at stake. Already the British Red Cross Society has dispatched one well-equipped expedition to Montenegro under three surgeons. During the present week three complete units are being sent out to Turkey, each one consisting of three surgeons, three dressers and twelve orderlies. In addition three directors are being sent to the North Balkan States, Turkey and Greece respectively, their official duty being to look after the Red Cross interests in each area."

The unhesitating promptness of this voluntary and non-partisan medical aid is perhaps after all the most inspiring episode in this stirring war, for it exemplifies a deeper and stronger spirit which underlies the conflict and really unites the combatants with each other and with all the world. In medicine, as in the heart of man,

"There is neither east nor west,
Border nor breed nor birth."

CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

During the coming week, from Nov. 11 to 16, there will be held in New York City the third Clinical Congress of Surgeons of North America. This congress was organized three years ago in Chicago, and its first meeting was held in

that city in 1910. In 1911, the second meeting was held in Philadelphia, with a very large attendance, and the success of subsequent repetitions seemed assured. This year for the third session there has been arranged an elaborate series of clinics extending throughout the day, and in the evenings "several important literary programs have been prepared, which will afford opportunity to hear the leading surgeons of this country and of Europe discuss the surgical topics of the day." Among the foreign speakers may be mentioned Dr. Otfried Foerster, of Breslau, Germany; Mr. Robert Jones, of Liverpool; Dr. Fedor Krause, of Berlin; Mr. W. Arbuthnot Lane, of London; and Dr. Friedrich Schauta, of Vienna. The congress will be under the presidency of Dr. Albert J. Ochsner, of Chicago.

MEDICAL NOTES..

A BRITISH CENTENARIAN.—Mrs. Mary Stockham, who died on Oct. 1 at Stogursey, Somerset, England, was locally reputed to have been born on Aug. 24, 1812.

LONDON MORTALITY STATISTICS FOR SEPTEMBER.—Statistics recently published show that the total death-rate in London during the month of September was only 12.5 per thousand living inhabitants. Among the several districts and boroughs, the highest rate was 20.2 per 1000 in Finsbury, a crowded central business area; and the lowest was 7.7 in Hampstead, an open residential suburb on the north.

INAUGURAL ADDRESSES AT BERLIN.—Report from Berlin states that on Oct. 31, Dr. Charles Sedgwick Minot, of the Harvard Medical School, and Professor William Milligan Sloane, of Columbia University, the two American exchange professors at the University of Berlin, delivered their inaugural addresses in the presence of the Emperor, the Faculty, and several hundred other distinguished guests.

FIRE IN A KENTUCKY SANATORIUM.—Report from Louisville, Ky., states that on Oct. 30 the Martinsville Sanatorium in that city was seriously damaged by fire. The inmates were all removed from the building, but one patient was killed while being carried down a ladder.

A PROLIFIC PARENT.—Report states that Mrs. Stephen Nageotte, of Frenchtown, near Franklin, Pa., has borne, during the past 15 years, 15 children, of whom 13 are still living. She is said to have had two sets of triplets within the past 14 months.

A ROBUST CENTENARIAN.—Lucy Frey, a negress, of Culpeper County, Va., is locally reputed to have been born a slave on June 20, 1790. She is a laundress by occupation, and it is averred that she is still in excellent health and can do a hard day's work of washing. Such work would not usually be wholesome for a centenarian, but in her case it seems to have been conducive to longevity.

ESTABLISHMENT OF THE SINGER INSTITUTE IN PARIS.—An item in a recent issue of the New York *Times* announces the gift by Mr. Singer of an Institute for Medical Research, to be established at Paris, for the study and discovery of ways to cure and prevent disease. This Singer Institute is intended to be similar to the Rockefeller Institute in New York.

BENEFITS OF ANTITYPHOID INOCULATION.—The latest report of the surgeon-general of the United States Army shows that during the calendar year 1911, the percentage of non-effectives among the enlisted men was only 0.3328, as against 0.3593 in 1910. This decrease is attributed chiefly to reduction of typhoid fever incidence by the use of antityphoid inoculation, which is now compulsory throughout the service.

INJURY TO THE GERMAN CROWN PRINCE.—Report from Danzig, West Prussia, states that the German Crown Prince, Frederick William, is confined to his bed in that city as a result of injuries received by being thrown from his horse while hunting. His condition is not considered serious.

BOSTON AND NEW ENGLAND.

SEIZURES OF IMPURE FOOD IN BOSTON.—In Boston last week 175 cases of macaroni, shipped to this city from New York and valued at $150, were seized by the United States deputy marshall for alleged misbranding. Twenty-five cases of apricots and 1500 bottles of vodka, previously seized, were destroyed under the provisions of the pure food law.

NEW APPOINTMENTS UNDER THE BUREAU OF CHILD HYGIENE.—Four new positions as assistant to the chief of the bureau of child hygiene,

Boston, have been recently created, and Drs. William J. McNally, Thomas H. O'Connor, Roland W. Brayton, and Joseph P. Murphy, of this city, have been appointed to fill them. Two new positions as school medical inspectors have also been created, and to these have been appointed Drs. Thomas M. Snay and Charles F. Stack. Each of the above named assistants will be in charge of one of the four districts into which the city is divided, and will have about 25 inspectors under his supervision.

Two Annual Hospital Sales.—On Thursday of this week, Nov. 7, from 10 a. m. to 6 p. m., will be held in Trinity Parish Hall, Boston, the anual sale for the benefit of St. Monica's Home for Sick Colored Women and Children, Roxbury.

It is announced that the sum of $4300 was realized from the sale recently held in Copley Hall, Boston, for the benefit of the Massachusetts Babies' Hospital. This sum is sufficient to pay the hospital bills up to Nov. 1, which is the end of the hospital year.

"Provided the donations received in November and December last year are renewed, there will remain about $1000 to raise before Jan. 1.

"At the present time there is an urgent demand for twice the number of beds the hospital can provide, while the number of babies temporarily placed at board is the largest in the history of the institution."

Bequest to a Hospital.—It is announced that the Sharon Sanatorium has recently received from the trustees of the Andrew C. Slater Fund the sum of $2500 for the endowment fund of the institution. Mr. Slater was formerly a resident of Newton, Mass.

Massachusetts Charitable Eye and Ear Infirmary.—At the annual meeting of the trustees of the Massachusetts Charitable Eye and Ear Infirmary, held in Boston on Oct. 31, Dr. George B. Shattuck, of this city, was reëlected president for the ensuing year.

Massachusetts Medical Benevolent Society.—At the annual meeting of the Massachusetts Medical Benevolent Society, held at the Medical Library, Boston, on Oct. 31, the following officers were elected for the ensuing year: President, Dr. George B. Shattuck; vice-president, Dr. George W. Gay; treasurer. Dr. William L. Richardson; secretary, Dr. Robert M. Green; trustee for two years, Dr. Henry A. Christian; trustees for three years, Dr. Enos H. Bigelow, Dr. William N. Bullard and Dr. Marshal Fabyan. This society, whose purpose is "the relief of destitute physicians or their families," has at present on its rolls 22 beneficiaries; and there are a number of deserving applicants for aid, who might worthily be helped were sufficient funds available. This is an honorable esoteric medical charity, which merits the constant and adequate support of the profession.

Measles in Leominster.—Report from Leominster, Mass., on Oct. 27 states that measles is at present epidemic in that town, where over one hundred cases of the disease have occurred within the past few weeks.

A Despondent Centenarian.—Report from Worcester, Mass., states that on Oct. 27 Mrs. Margaret Fleming, of that city, who is locally reputed to be 105 years of age, attempted to commit suicide by wading into a pond. She was rescued, and is said to be physically no worse for her misadventure.

Boston Mortality Statistics—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Oct. 26, 1912, was 230, against 195 the corresponding week last year, showing an increase of 35 deaths, and making the death rate for the week 16.66. Of this number 121 were males and 109 were females; 224 were white and 6 colored; 140 were born in the United States, 84 in foreign countries, and 6 unknown; 41 were of American parentage, 155 of foreign parentage, and 34 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 33 cases and 1 death; scarlatina, 19 cases and 0 deaths; typhoid fever 14 cases and 3 deaths; measles, 41 cases and 0 deaths; tuberculosis, 55 cases and 22 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 32, whooping cough 0, heart disease 29, bronchitis 0. There were 8 deaths from violent causes. The number of children who died under one year was 44; the number under five years 58. The number of persons who died over sixty years of age was 64. The deaths in hospitals and public institutions were 107.

Deducting the deaths of non-residents, the total is 194. The corrected death-rate is then 14.05.

Cases of infectious diseases reported to the

Boston Board of Health for the week ending October 29, 1912, are: Diphtheria, 33; scarlatina, 23; typhoid fever, 9; measles, 39; smallpox, 0; tuberculosis, 68.

The death rate of the reported deaths for the week was 14.34.

NEW YORK.

A GIFT TO MEDICAL SCIENCE.—A report from Paris dated October 22 announces the gift to medical science, by Paris Singer, a wealthy American residing in that city, of an institution to be conducted on the lines of the Rockefeller Institute for Medical Research in New York What the total amount of the foundation will be is unknown, but it is stated that the well-known Paillard Palace at Bellevue, on the left bank of the Seine, has already been purchased for the institute, and that the acquisition and equipment of this building will involve an initial expenditure of $400,000. It is also mentioned that Dr. Alexis Carrel of the Rockefeller Institute will probably be invited to become the medical director.

EXAMINATION OF MENTAL DEFECTIVES.—At a meeting of the Board of Education held October 23 a resolution was adopted which so amends the by-laws of the body as to provide for the appointment of two additional physicians for the examination of mentally defective children, an assistant inspector of ungraded classes, and a social worker to visit the parents of defective children.

ANOTHER FATAL CURE BY CHRISTIAN SCIENCE.—Only quite recently it was triumphantly announced that Mabel Hite, an actress of some prominence, had been cured of cancer through Christian Science, "after she had been given up by all the doctors." The triumph of the Eddyites was of short duration, however, for on October 22 she died of this same cured cancer. The case was one of intestinal malignant disease, and the patient's life was undoubtedly prolonged by surgery. She was operated upon in June last by Dr. John F. Erdmann, but at the time he expressed the opinion that the cancer would recur.

POISONING BY OXALIC ACID.—Recently a patient who had been confined at the Yonkers Homœopathic Hospital and Maternity was fatally poisoned by oxalic acid, administered in mistake for Epsom salts by a nurse in the institution. Through whose carelessness the bottle of oxalic acid was left in a position rendering such an accident liable to occur has not been discovered.

GIFT TO JOHNS HOPKINS HOSPITAL.—It is announced that the trustees of the Johns Hopkins Hospital in Baltimore have accepted a gift of $200,000 from James B. Brady of New York, who was personally much benefited by treatment received at the hospital, for the founding of a urological department, to be known as the James Buchanan Brady Urological Institute. A separate building will be erected, six stories in height, and with well-equipped laboratories, rooms for private patients, and accommodations for fifty public patients. In addition, Mr. Brady is to contribute $15,000 a year, during his life, for the maintenance of the institute, and states that he has made provision in his will for its support after his death.

A HOSPITAL BEQUEST.—Under the will of the late Mrs. Charles E. Rhinelander of New York the sum of $69,000 is left to St. Luke's Hospital.

TUBERCULOSIS DAY.—In accordance with the recommendation of the National Association for the Study and Prevention of Tuberculosis, Sunday, October 27, was generally observed as "Tuberculosis Day" by the New York churches, both Protestant and Roman Catholic; in the latter of which Cardinal Farley's letter, to which reference was recently made in the JOURNAL, was read to the congregations. Literature on tuberculosis was distributed and many sermons and addresses were delivered. At the Manhattan Congregational Church the principal speaker at the evening forum was Dr. S. Adolphus Knopf.

MONTEFIORE HOME.—The corner stone of the new buildings of the Montefiore Home and Hospital for Chronic Invalids at 210th Street, in the Bronx, was laid on October 27 with appropriate ceremonies. There was a large attendance, and addresses were made by Mayor Gaynor, Jacob H. Schiff, president of the board of directors, Dr. Felix Cohn, chairman of the medical board, and others. Among the recent gifts to the institution announced was one of $50,000 from Mrs. Louis Wolf, for cancer research. The new group

of buildings, which will be completed in about a year, and accommodate 700 patients, will cost $2,000,000, and it estimated that the operating expenses will amount to $300,000 per annum.

Appointment of Dr. Summersgill.—Dr. H. T. Summersgill, superintendent of the New York Post-graduate Medical School and Hospital, has been offered the position of superintendent of city hospitals in Cincinnati, Ohio. In tendering it to him the mayor of that city informed him that it was expected that the salary of the office would be increased from $3000 to $5000 on the first of January, when his term of service would begin. Dr. Summersgill, who had previously been in the Government medical service in the Panama Canal Zone, was appointed superintendent of the Post-graduate in May last, succeeding Dr. Frederick Brush, who resigned to become medical director of the Burke Foundation.

Uncontrollable Epistaxis.—A case of uncontrollable nose-bleed is reported from Bellevue Hospital in which, after plugging of the posterior nares and all other means had failed, the injection into the patient's vascular system of horse serum, which was obtained from the laboratories of the Health Department, was successful in putting an end to the hemorrhage.

City Budget.—On October 31 the Board of Estimate and Apportionment passed the city budget for the year 1913. The Health Department appropriation was $3,381,620, which is an increase of $230,322 over that for 1912, instead of an increase of $1,314,843 asked for. The appropriation for Bellevue and Allied Hospitals was $364,276, an increase of $65,930 over 1912, and for the Department of Public Charities, $3,825,026, an increase of $304,863.

Discontinuance of Night Docking.—Dr. O'Connell, Health Officer of the Port, has ordered that night dockings of incoming steamships shall be discontinued. He states that he considers the health of the nation of more importance than the landing of a few hundred passengers at night, instead of their detention at Quarantine until morning, as a more efficient examination of the steerage passengers by his staff of physicians can be made by daylight than by artificial light.

Poliomyelitis in Buffalo.—During the week ending Oct. 19 only six new cases of poliomyelitis were reported in Buffalo, N. Y. Apparently the epidemic of this disease in that city is rapidly subsiding.

Harvey Lecture.—The third in the current course of Harvey Lectures will be delivered at the New York Academy of Medicine on Saturday of this week, Nov. 9, by Professor Joseph Erlanger, of George Washington University, on "The Localization of Impulse Initiation and Conduction in the Heart."

Sustained Sentence for Divine Healer.—Report from Albany, N. Y., on Oct. 29, states that "the court of appeals has affirmed the decision of the lower courts in imposing the maximum penalty, 11 months and 30 days in the penitentiary and a $500 fine, upon Salvatore Spinella of New York for practicing medicine without a license.

Spinella claimed to be a "divine healer," and advertised that he could cure all diseases by the power of angels, miracles, and the laying on of hands."

Current Literature.

Medical Record.

October 26, 1912.

1. *Symonds, B. *Some Studies in Family History.*
2. Taylor, H. L. *Progressive Curvature of the Radius (Madelung's Deformity), Corrected by Osteotomy.*
3. Bahr, M. A. *Some Clinical Observations in Three Cases of Huntington's Chorea.*
4. Rosenbluth, B. *Two Cases of Seventh Nerve Paralysis Secondary to Artificial Congestion.*
5. Warbrick, J. C. *Indicanuria and the Chlorides.*
6. Vandegrift, G. W. *The Treatment of Interstitial Keratitis by Salvarsan.*

1. Symonds presents the results of an exhaustive study of family history in relation to life insurance, special attention being paid to tuberculosis and apoplexy. Some of his conclusions are very interesting. He finds that a tubercular family history has its maximum effect in the ages prior to 30, and that after the age of 40 its influence can be practically disregarded, unless the longevity of the family as a whole is also impaired. A tubercular family history is neutralized to some degree in the ages below 30 by a weight which is above the average, but after the age of 40 overweight increases the undesirability of such a risk. The larger the number of cases of tuberculosis in the family, the more apt the mortality is to rise. A tubercular brother or sister is as influential in affecting mortality as a tubercular parent. A tubercular family history predisposes to tuberculosis, either by inheritance, infection or environment. A good family longevity neutralizes a tubercular taint. Two or more cases of apoplexy in the family materially increases mortality and is a distinct impairment. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

OCTOBER 26, 1912.

1. WRIGHT, J. *The Inheritance of Acquired Characters.*
2. ISAACS, A. E. *Membranous Pericnteritis.*
3. MACWHINNIE, A. M. *Pedunculated Sarcoma and Myxoma of Larynx.*
4. MAGRUDER, E. P. *Fractures of the Skull.*
5. REILLY, T. F. *Medical Economics.*
6. STEINHARDT, I. D. *Ten Sex Talks to Girls.*
7. LEVIN, I. *Specific Therapy of Cancer.*
8. KLEIN, S. R. *The Pathological Relations of Urine to Mental and Nervous Diseases.*
9. GEYERMAN, P. T. *Femoral Varix.*
10. STRAUSS, H. *Carbohydrate Treatment in Diabetes.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

OCTOBER 19, 1912.

1. *BELFIELD, W. T. *Some Causes of Sterility and Impotence in the Male.*
2. MAYO, W. J. *Surgical Treatment of Prolapse of the Uterus and Walls of the Vagina.*
3. *RAVENEL, M. P. *The Hygiene of Swimming-Pools.*
4. MCLAUGHLIN, A. J. *The Relation of Interstate Waters to the Spread of Typhoid.*
5. FISCHER, M. H. *A Further Response to Some Criticisms of the Colloid-Chemical Theory of Water Absorption by Protoplasm.*
6. WOOD, H. C., JR. *The Purpose and Limitations of Bio-Assay.*
7. BIERRING, W. L. *Chloroma: A Clinical Study of Two Cases.*
8. ROBERTS, P. W. *Reconstruction of Ball-and-Socket Joints.*
9. BROWN, G. V. I. *The Speech Relation of Cleft Palate Operation.*
10. HOAG, D. E. *Pellagra: Observations on Some of Its Nervous Manifestations.*
11. ATWOOD, C. E., AND TAYLOR, A. S. *A Case of Traumatic Psychosis Associated with an Old Depressed Fracture of the Skull.*
12. BERRY, J. M. *Fracture of the Tuberosity of the Ischium Due to Muscular Action.*
13. JORDAN, E. O. *The Case for Pasteurization.*

1. Belfield wishes to dispel the prevalent idea that spermatogenesis is the essential function of the testes. He believes that neither the discharge or even the production of spermatozoa is necessary to sexuality. Investigation of childlessness should begin not with the curettage of the wife but with microscopic inspection of the husband's semen. He does not believe that vasectomy or drainage to the ejaculatory ducts during perineal prostatectomy impairs sexual power by preventing the discharge of spermatozoa.

3. Contagious disease can easily be spread by means of artificial swimming pools. A change of water once a week keeps the pool in fairly good condition. The addition of hypochlorite of lime is a simple, cheap and safe precaution insuring absolute safety. The author does not state the proportion of drug to be used. [E. H. R.]

OCTOBER 26, 1912.

1. FISHER, E. D. *Injuries of the Spinal Column, with and without Fracture and Dislocation.*
2. NEFF, J. S. *An Epidemic of Typhoid Fever in Philadelphia.*
3. STOKES, W. R., AND HACHTEL, F. W. *Some Results of the Treatment of the Baltimore Drinking-Water by Calcium Hypochlorite.*
4. SEDGWICK, W. T. *The Fallacy of Testing Food Materials by Animal Inoculation.*
5. DEEKS, W. E. *A Preliminary Report on a Hitherto Unrecognized Six-Day Fever in Ancon, Canal Zone.*
6. MILLS, C. K., AND MARTIN, E. *Aphasia and Agraphia in Some Practical Surgical Relations.*
7. JORDAN, H. E. *The Need for Genetic Studies of Pulmonary Tuberculosis.*
8. MONTGOMERY, D. W. *Psoriasis. The Value of Baths and of Maceration in Its Treatment.*
9. MURLIN, J. R., AND BAILEY, H. C. *Protein Metabolism in Late Pregnancy and the Puerperium.*
10. *NESBIT, O. B. *Books as Carriers of Scarlet Fever Infection.*
11. *KOESSLER, K. K. *Recent Advances in Our Knowledge of Scarlet Fever.*
12. WELLMAN, C., AND JOHNS, F. M. *The Artificial Culture of Filarial Embryos; A Preliminary Note.*
13. ELSBERG, C. G. *Surgery of Intra-medullary Affections of the Spinal Cord.*
14. WESTON, P. G. *Immunization against Typhoid of 898 Patients.*
15. WORKS, B. D. *The Quantitative Examination of Albumin in the Sputum in Pulmonary Tuberculosis.*
16. BARRINGER, B. S. *Unilateral Kidney Hemorrhage Controlled by Injection of Human Blood-Serum.*
17. REICHARD, V. M. *Spontaneous Hemorrhage of the New-Born with Recovery.*
18. PERKINS, M. J. *Diphtheritic Serum Used to Control Bleeding in a Hemophiliac.*
19. CLAYBROOK, E. E. *A Case of Hemophilia.*
20. O'MALLEY, MARY, M.D. *Carbon Monoxid Poisoning with Acute Symptoms.*

10. Nesbit states that it is only immediately after being contaminated with the discharges of the patient that books can act as carriers of scarlet fever. His investigation failed to reveal even a single instance of this kind. Books that have been used by scarlet fever patients do not long contain the infection in such a way as to transmit the disease to man. Any books so used should, however, be burned or fumigated. The latter may be accomplished easily by immersing in a mixture of gasolene and 2 per cent. phenol for twenty minutes, then placing before an electric fan to dry.

11. Koessler finds that the serum of scarlet fever patients contains specific antibodies for an unknown virus which is present especially in the cervical lymph nodes. The inference drawn is that the streptococcus is to be discarded as the etiologic factor of scarlet fever. [E. H. R.]

JOURNAL OF INFECTIOUS DISEASES.

JULY, 1912.

1. *SCHROEDER. *A Study of the Bacteriological and Sanitary Conditions of the Milk Supply of New York City.*
2. JORDAN AND IRONS. *The Rockford (Ill.) Typhoid Epidemic.*
3. KOLMER. *A Study of Diphtheria Bacilli with Special Reference to Complement-Fixation Reactions.*
4. KOLMER. *A Contribution to the Bacteriology of Diphtheria.*
5. HISS. *A Method of Obtaining Cultures from the Duodenum of Infants.*
6. *IRONS. Cutaneous Allergy in Gonococcal Infections.
7. ROSENOW. *Further Studies of Toxic Substances Obtainable from Pneumococci.*
8. HARDING AND OSTENBERG. *Studies on Endo's Mediums, with Observations on the Differentiation of Bacilli of the Paratyphoid Group.*
9. DUVAL AND WELLMAN. *A Critical Study of the Organisms Cultivated from the Lesions of Hu-*

man Leprosy, with a Consideration of Their Etiological Significance.

1. The authors conclude, from a large series of analyses, that milk delivered to the local dealers is relatively clean. Most of the contamination arises after this delivery, because of insufficient cooling both in storage and delivery, through unclean receptacles and delay in marketing the supply. They urge a concerted effort be made to obtain pure milk.

5. By means of a catheter, tipped with a gelatine capsule, Hiss has been able to obtain cultures from the stomach, duodenum and jejunum of infants. A great variety of organisms were recovered from a long series of cases investigated. But relatively few bacteria were found during the early days of life. In one instance typhoid bacilli were recovered from the duodenum in a case of typhoid fever in a child 22 months old. This has suggested the value of this means of investigation to prove in adults the question of "typhoid carriers."

6. Gonococcin, as the substance is called by Irons, is an evaporated glycerine extract of phenolized, heat-killed gonococci. The use of this substance for a cutaneous reaction in gonorrhea is identical with von Pirquet's tuberculin cutaneous reaction. Positive reaction, *i.e.* wheals exceeding 5 mm., are found in late acute stages of gonorrheal infection, but often not before convalescence in such conditions as gonorrheal arthritis. The increase of anti-bodies in the latter stages of acute infections and during improvement and convalescence of the more general and severe cases accounts for the appearance at this time of the specific allergy. There appears to be a group relationship in reaction between the gonococcus, the meningococcus and m. catarrhalis. [L. H. S.]

THE LANCET.

OCTOBER 5, 1912.

1. ROLLESTON, H. D. *Inaugural Address on Universities and Medical Education.*
2. *BATTLE, W. H. *Ventral Hernia, Traumatic or Incisional. Lect. I.*
3. *TRETHOMAN, W. H. *Acute Anterior Poliomyelitis: An Account of Recent Important Experimental and Epidemiological Investigations in Sweden.*
4. *WOODWARK, A. S., AND WALLIS, R. L. M. *The Relation of the Gastric Secretion to Rheumatoid Arthritis.*
5. GROVES, E. W. H. *A Note on the Material and Technic of Wire Suture of Bone, with Especial Reference to the Suture of the Patella and the Advantages of Iron Wire.*
6. SMITH, H. *A Case of Intracranial Tumors.*
7. FAIRLEY, J. *Tuberculin Dispensaries and Diagnosis Scheme of Classification of Patients Attending the Portsmouth Municipal Dispensary.*

2. In this first lecture Battle discusses the causes of ventral hernia, the anatomical structure of the abdominal wall, hernia in suppurative and in clean cases and operation for relief of this condition, with special reference as to suture materials and modes of suture.

3. This article is an interesting review of the recent work in Sweden on epidemic anterior poliomyelitis both in the field and in the laboratory.

4. The writers have made careful analyses of stomach contents in cases of rheumatoid arthritis, endeavoring to find some relationship between an abnormal gastric condition and the arthritis. They believe some such relationship exists but are unable to come to any conclusions in regard to it. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 36. SEPTEMBER 3, 1912.

1. *NOGUCHI, H. *Pure Culture of the European, American and African Relapsing Fever.*
2. ABDESHOLDEN, E. *Diagnosis of Pregnancy by the Optic Method and Dialysis.*
3. HARNACK, E. *Acute Blinding by Methyl-alcohol and Other Poisons.*
4. HARTING, C. *Digifolin, a New Preparation of Digitalis.*
5. ULRICH, A. *Five Years' Experience with the Treatment of Epilepsy by a Diet Low in Salt. (To be concluded.)*
6. MAIER, H. W. *Experiments with a New Method of Administering Bromide with a Diet Low in Salt.*
7. RUMPF, E. *The Occurrence of Tubercle Bacilli in the Blood-stream.*
8. DOERING, D. D. *The Occurrence of Meningococci in Pus from the Ear.*
9. VOGT, H. *The Diagnosis of Pulmonary Tuberculosis in Childhood.*
10. WEBER, F. W. A. *Numerous Cases of Facial Paralysis in One Family.*
11. JUSTI, K. *Diaphragm of the Trachea after Tracheotomy.*
12. VOLLERT, R. *Three Cases of Severe Choked Disc in Syphilis after Salvarsan.*
13. CRONQUIST, C. *Statistics of Hypersusceptibility after Salvarsan.*
14. MOLDOVAN, J. *Results of the Use of Salvarsan in the Austro-Hungarian Army. (Concluded.)*

1. Noguchi describes a method by which he has succeeded in growing four varieties of spirochetes in pure culture on artificial media. A fuller account is to appear in *The Journal of Experimental Medicine.* [G. C. S.]

No. 37. SEPTEMBER 10, 1912.

1. LÜDKE, H., AND STURM, J. *Specificity of the Tuberculin Reactions.*
2. SCHOTTMÜLLER, H. *Cerebro-spinal Fluid in Infectious Diseases and the Wassermann Reaction in Epidemic Poliomyelitis.*
3. HAUSMANN, T. *The Question of Concentric Contraction of the Pyloric Antrum.*
4. CLERTEL. *Endoscopic Examination of the Nasopharynx and Larynx.*
5. SCHMIDT, J. E., AND STOCHER, H. *A Case of Intestinal Anthrax Cured by Operation.*
6. KUBIG, G. *Volvulus of the Gall-bladder.*
7. STEIGER, O. *Untoward Effects of Intramuscular Injection of "Joha," a Forty Per Cent. Preparation of Salvarsan.*
8. VULPIUS, O. *A New Hip-support for Severe Paralysis.*
9. HEINRICH, A. *A New Irrigator for Treatment of Posterior Gonorrhea in the Male and Female.*
10. SCHULTZE, E. O. P. *A Simple Apparatus for Passive Hyperemia of the Hip and Shoulder, etc.*
11. GERBER. *Enlarged, Anastigmatic Nasal Tumor.*
12. HIRSCHEL, G. *Intraperitoneal Use of Camphor-oil.*
13. MARTIN, E. A. *Epidemiology of Appendicitis.*
14. ROSSELMANN, R. *Comparative Tests of Röntgenological Instruments.*
15. *ULRICH, A. *Five Years' Experience with Epilepsy on a Diet Low in Salt. (Concluded.)*

15. Ulrich reports in detail the results of treating 15 cases of epilepsy by a diet low in salt in combination with bromides. His method facilitates the use of such a diet and the results were excellent. [G. C. S.]

No. 38. SEPTEMBER 17, 1912.

1. *GÖTT, T., AND ROSENTHALL, J. *A Method of Showing the Movements of the Heart by the X-ray.*
2. v. ANGERER, K., AND STÖTTER, H. *Attempts to Make the Antigen-antibody Visible.*
3. *FRIEDLÄNDER. *Effect of Febrile Processes on Meta-luetic Diseases of the Nervous System.*

4. LEREDDE. *Beneficial Effect of Salvarsan in Tabes Dorsalis.* (*To be concluded.*)
5. FRANK, E. R. W. *Effect of Hexal on Infections of the Urinary Passages.*
6. ROEMER, R. *Pituglandol in the Midwifery Poliklinik.*
7. KLOTY, R. *Pituitrin Therapy in Peritonitis.*
8. GÜNBAUM, D. *Further Experience with Hypophysis-extract in Midwifery.*
9. VOLL. *Pituitrin-treatment.*
10. KONOPKA, W. *100 Laparotomies in Private Houses.*
11. HEDDAENS. *Treatment of Large Carbuncles by Circumcision.*
12. LUSTIG, A. *Eight Years of State Use of Quinine against Malaria in Italy.*
13. ROST, F. *Rectal Inflation of the Colon.*
14. SLAWINSKI, Z. *Diagnosis of Interval Appendix.*
15. LÜDKE, H. *Principles of Serum-therapy for Typhoid.*

1. The writers describe a method of x-ray photography with a moving plate, by which through slits in a lead screen curves can be obtained representing the movements of the individual chambers of the heart or of the aorta. Diagrams of these curves show the movements of the aorta, the left ventricle and the right auricle and ventricle together. It is believed that the method will prove of great value for study of the heart and perhaps also of other internal organs.

3. Friedländer reports improvements both of symptoms and reflexes in cases of tabes and of general paralysis following the production of fever by means of injections of tuberculin. Mercury also was used from time to time but definite improvement seemed to follow the use of the tuberculin. [G. C. S.]

No. 39. SEPTEMBER 24, 1912.

1. *IGERSHEIMER, J. *Experimental Studies of Syphilis of the Eye.*
2. *ESCH, P. *Use of the Intra-cutaneous Tuberculin Test to Hasten Diagnosis by Means of Animals.*
3. *WEIL, F. *Lipoidemia.*
4. WECHSELMANN. *Neosalvarsan.*
5. ZACHAN, P. *Significance of a Uniformly Low Rectal Temperature in the Child.*
6. FLATAN, G. *Chorea Luetica.*
7. NENADOVICS, L. *Influencing the Stimulation-system of the Heart by Carbon-dioxide Baths with Indirect Cooling.*
8. BAUTLIN. *Pellidol and Azodolen for the Treatment of Eczema with Exudative Diathesis.*
9. FRANKE, C. *A Case of Cure of Pylephlebitic Abscess of the Liver after Appendicitis.*
10. JAEGER, R. *Gun-shot Wound of the Brain, the Bullet Remaining in the Fourth Ventricle Four and One-Half Years.*
11. GINS, H. A. *Cheapening the Use of Formaldehyde without Apparatus.*
12. SCHWORI, G. *Story of Embolus of Placenta-cells.*
13. LEREDDE. *The Beneficial Effect of Salvarsan in Tabes Dorsalis.*

1. The successful production, by injecting spirochetes into the artery, of lesions in rabbits resembling the syphilitic lesions in human eyes affords opportunity for further knowledge of the development of such lesions. The writer describes his methods and findings.

2. By the use of intra-cutaneous injections of tuberculin on guinea pigs previously injected with tuberculous material, the writer has been able in a comparatively short time to demonstrate that the pig was tuberculous. Results were confirmed by autopsy on the pig.

3. Weil reports a case of chronic nephritis in which the blood-serum and body transudates were cloudy. The cloudiness was due apparently neither to albumin nor to fat alone, but to a lipoid substance. [G. C. S.]

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

BAND 107. HEFT 5-6. SEPTEMBER 5, 1912.

1. HIRSCH, C., AND THORSPECKEN, O. *Experimental Investigations on the Subject of Arteriosclerosis.*
2. EICHORST, H. *Essay on Diseases of the Pores.*
3. ROLLAND, A. *The Question of Toxogenic Albumin Destruction in Human Fever.*
4. BRUNS, O. *Investigations on the Respiratory Gas Exchange in Diseases of the Lungs and Respiratory Tract.*
5. *BEHRENROTH, E. *Echinococcus Disease of the Lung.*
6. WOLPE, J. M. *Disturbances in Gastric Secretion in Basedow's Disease.*
7. ISHIOKA, S. *Histology of Anaphylaxis Phenomena.*
8. BENJAMIN, E., AND GOETT, T. *Importance of Radiographs of the Thorax in Infants.*
9. *GUGGENHEIMER, H. *Eunuchs.*
10. SCHLESINGER, E. *Further Conclusions on the Presence and Genesis of Gastroptosis Based on the Roentgen Picture.*
11. *ROSLER AND JARYCK, H. *Effect of Atophan in Chronic Myelogenous Leukemia.*
12. ROLLEY, FR. *Remarks upon the Invention of F. G. Benedict. A Universal Respiratory Apparatus.*

5. Behrenroth reports five cases of Echinococcus disease in the cyst stage in the human lung. He emphasizes the value of the Roentgen ray pictures in making the diagnosis and presents some very good photographs. In making the diagnosis the presence of eosinophiles and the complement fixation reaction are also of value.

9. Guggenheimer takes up the question of reaction of tissues to changes in internal secretion, especially the changes after castration or in people with apparent atrophy of the testicular or ovarian function. The most striking characteristic is the deposition of extra fat in certain parts of the body. There also seems to be a disproportion between the length of the body and the extremities. Another feature is the occurrence of a glycosuria. In the blood picture there is apt to be an increase in the red cells and a relative increase in mononuclear leucocytes and also frequently an actual increase.

11. As atophan increases excretion of uric acid and as uric acid is supposed to come from leucocytes to a certain extent these authors considered using atophan in myelogenous leukemia. Although as in other cases the uric acid output was increased there was no change in the leucocyte count. [C. F., JR.]

DIE THERAPIE DER GEGENWART.

JUNE, 1912.

1. ALBU, A. *The Diagnosis and Treatment of Duodenal Ulcer.*
2. LAMPÉ, E. *The Use of Glycohepton-Acid-Lacton in Diabetes Mellitus.*
3. FOLKE. *The Great Importance of Folia Digitalis Titratra and Its Comparison with Other Digitalis Preparations.*
4. *EDER. *An Easily Soluble Hypnotic of the Veronal Group (Luminal).*
5. LEUGERMANN, P. *The Treatment of Flat-Foot by the General Practitioner.*
6. STENGER. *The Endonasal Treatment of Ocular Diseases on the Basis of New Endonasal Operative Methods.*
7. SCHMID, F. *Are There Valuable Mercurial Soaps?*

4. Eder gives his experience with the new hypnotic, luminal. He is very favorably impressed with it, finding that in doses of three to six grains it induces deep sleep without untoward effects. In painful affections it is used to advantage in combination with small doses of morphine. Subcutaneous injection of

luminal-sodium is useful in allaying vomiting, restlessness and delirium. [L. D. C.]

JULY, 1912.

1. SONNENBURG, E. *Appendicitis and Colitis.*
2. BINGEL, A. *"Salvarsan Fever."*
3. MARIA AND NICULESCU. *On the Behavior in the Body of a Colloid Silver Electrically Produced (Fulmargin), Compared with Colloid Silver Chemically Produced (Collargol).*
4. WOLFF-EISNER, A. *Supplement to the Preceding Study.*
5. *BENDIX, A. *The Treatment of Articular Rheumatism with Atophan.*
6. MÜHSAM, R. *Caution with Hormonal!*

5. Bendix reports in detail 100 cases of articular rheumatism treated with atophan (phenyl-chinolin-carbonic acid). He finds its action extraordinarily similar to that of the salicylic acid preparations and only slightly inferior to it. The explanation of its action can be determined only after further experimentation. Atophan is free from untoward effects even when given in large doses over long periods. Three grains a day is sufficient, given in divided doses, and it should be administered for at least six successive days in this way unless results are obtained within that time. In most cases which resist salicylates, atophan will give relief if not complete cure. [L. D. C.]

AUGUST, 1912.

1. *KLEMPERER, G., AND HIRSCHFELD, H. *The Present Status of Thorium-X Therapy, with Some Observations on Leukemia and Anemia.*
2. ALBRECHT, E. *Practical Results from the Treatment of Heart Cases with Changes in Pulmonary Pressure (My Method).*
3. HOEPFNER, T. *The Symptoms of Stammering. Contributions to the Knowledge of Stammering for the Practising Physician.*
4. ENGELEN. *Therapeutic Experiments with Melubrin.*
5. ROSENFELD, M. *Experiences with Luminal, a New Hypnotic.*
6. MEIDNER, S. *New Publications on the Chemotherapy of Malignant Tumors.*

1. Klemperer and Hirschfeld review the animal experimentation and the therapeutic trials of thorium-x and report seven cases of their own—three of leukemia and four of pernicious anemia. They claim that the thorium-x treatment is as valuable as x-ray treatment in leukemia and it has the great advantage of being always available and independent of a special instrument. It is also less dangerous than the x-ray. In pernicious anemia the results with thorium-x have been about the same as those with arsenic. It does not seem to be any more valuable but can be used to supplement arsenic, as it is available when the latter is contraindicated. The writers have seen antimony effective when arsenic has failed, and thorium-x can be used in conjunction with this metal, too. [L. D. C.]

SEPTEMBER, 1912.

1. CASPER, L. *The Treatment of Prostatic Hypertrophy.*
2. ALBRECHT, E. *Practical Results from the Treatment of Heart Cases with Changes in Pulmonary Pressure (My Method).*
3. BERGMAN, P. *Oxygen Inhalation.*
4. *KINO. *The Action of Luminal, Especially in Epilepsy.*
5. LEWIN, C. *The Zeller Treatment of Cancer.*
6. JACOBSOHN, L. *Paul Ehrlich on the Present Status of Salvarsan Therapy with Special Reference to Fatal Cases.*
7. KLINK, W. *Recent Surgical Works on Cholelithiasis.*

4. Kino observed the action of 450 doses of the new hypnotic, luminal, in 25 cases, mostly functional neuroses. It acted well as a sedative in excited mental cases, and in two cases of genuine epilepsy it certainly reduced the number and intensity of the convulsive seizures. As a pure hypnotic it acted promptly, generally within an hour, and the effect lasted from seven to eight hours unless the patient was used to hypnotics. The largest single dose given was six grains. No untoward symptoms were observed. [L. D. C.]

IL POLICLINICO.

SEPTEMBER, 1912.

SURGICAL SECTION.

1. PEPERE, A. *On the Origin of Multiple Cysts of the Spleen.*
2. ROMANELLI, G. *A Clinical Study of Complications in the Course of Various Infectious Diseases.*
3. MISSIROLI, A. *Complement Fixation in Malta Fever.*
4. *PICCININNI, F. *Studies on the Production of Immune Bodies in Staphylococcus Infections.*

4. Piccininni made a clinical study of subacute and chronic staphylococcus infections with reference to the production of immune bodies. He also produced staphylococcus infections in rabbits and made agglutination and hemolysis tests. He finds that in subacute and chronic infections the human organism produces specific anti-bodies, demonstrable by the agglutination and complement-fixation tests. There is, therefore, a possibility of using these reactions for diagnostic purposes. In acute staphylococcus infections specific anti-bodies are not found in the blood-serum. In the blood-serum of rabbits in whom subacute infection has been produced by inoculation with virulent staphylococci, specific anti-bodies are developed. In the case of local infections these anti-bodies are demonstrable in vitro only, while the serum of rabbits with general infections shows an appreciable immunizing action in vivo also. [L. D. C.]

Obituary.

SYDNEY HOWARD CARNEY, M.D.

SYDNEY HOWARD CARNEY was born in Lowell, Mass., August 24, 1837, and died at Staten Island, N. Y., October 22, 1912. Dr. Carney was the son of James G. Carney, a prominent resident of Lowell, the founder and, for many years, cashier of the Lowell Institution for Savings, and president of the Lowell National Bank.

Dr. Carney was a pupil in the public schools of Lowell. He entered Amherst College as of the class of 1858; but, before graduating commenced the study of medicine at the Tremont Medical School, later joined with the Medical Department of Harvard University. He took his degree in 1861. In 1860 and 1861 he was Medical House Pupil at the Massachusetts General Hospital. In 1861 he was appointed physician at the State Almshouse at Bridgewater, re-

maining there fore one year. In 1862 he opened an office in the South End of Boston and practised there till 1870, serving as one of the physicians of the Dispensary and as an active member in the medical societies. In 1867 he became Surgeon General of the Travelers' Life Insurance Company of Hartford, Conn., continuing until 1870 when he removed to New York City and became identified, as Superintendent of the Medical Department and Associate Medical Director of the New York Life Insurance Company continuing in this position until 1894. After that, till his death, he was engaged in the practise of medicine in New York with his son, Dr. H. S. Carney, Jr.

Those who knew Dr. Carney in Boston recall him as an able and intelligent member of the profession, strong in his friendship, faithful to his patients and honest above all things. The testimony of those acquainted with him in New York bear out this character and they speak especially of his devotion to duty and his valuable service in the special line in which he was engaged.

Miscellany.

SOME EXPERIMENTAL OBSERVATIONS UPON MONKEYS CONCERNING THE TRANSMISSION OF POLIOMYELITIS THROUGH THE AGENCY OF STOMOXYS CALCITRANS.

THE following paper by Dr. M. J. Rosenau, professor of preventive medicine and hygiene in the Harvard Medical School and Mr. Charles T. Brues instructor in economic entomology at the Bussey Institution, was published, under the above title, in the monthly bulletin (vol. VII, No. 9) of the State Board of Health of Massachusetts, for September, 1912. It represents the remarks made by Dr. Rosenau on Sept. 26 at the Fifteenth International Congress of Hygiene and Demography at Washington, D. C., in discussion of a paper by Dr. Mark W. Richardson, secretary of the Massachusetts State Board of Health, on "The Occurrence of Infantile Paralysis in Massachusetts, 1907-12." The importance of the subject and of the data and observations recorded by Dr. Rosenau and Mr. Brues make their paper seem to deserve republication here *in extenso*. Comment upon it will be found in the editorial columns of this issue of the JOURNAL.

The work we are about to report was done for, and under, the auspices of the State Board of Health of Massachusetts.

We should like to have it distinctly understood, and therefore emphasize the fact in the beginning, that this announcement is to be considered as a preliminary report, for the work is still in progress. Certain results have been obtained which it seems advisable to announce at this juncture. In taking this action in announcing work before it is completed we have not assumed the sole responsibility, but have taken counsel with older and wiser heads, friends for whose judgment we have the highest regard:

When we first took up the study of this disease—infantile paralysis—with the State Board of Health of Massachusetts, we considered all possible modes of transference of the virus from the sick to the well, but gradualy focused our attention upon the fact that the disease seemed to be spread rather directly from person to person. In other words, the disease appeared to us at first blush to be a "contagious" disease, but one in which mild or abortive cases, missed cases, and third persons probably played an important rôle in the tranfer of the infection. We were probably prejudiced in favor of this viewpoint on account of the splendid work of Wickman, whose publications we studied with care. We were further influenced to regard poliomyelitis as a "contagious" disease owing to the views of Flexner, who compared it to epidemic cerebro-spinal meningitis, and who regarded that it spread in the light of a contact infection through the secretions from the mouth and nose. The analogy to meningitis was a very close one, and the experimental fact that the virus could be demonstrated in the nasal mucosa of monkeys (Osgood, Lucas and others) seems to corroborate the suspicion that we are in fact dealing with an infection spread very much as cerebro-spinal meningitis is spread.

If these assumptions were correct then the virus should be demonstrable in the secretions from the nose and throat. Rosenau, Sheppard and Amoss therefore injected 18 monkeys with the nasal and buccal secretions obtained from 18 persons who were suffering with the disease at the time or in the stage of convalescence, or from persons suspected of acting as carriers. These results were negative. At the same time Straus of New York had a series of negative results, and other American workers were also unable to find the virus where we assumed it should be. These negative results seemed to us to have positive significance, and were the first definite indication that we were upon the wrong trail.

That poliomyelitis is not a "contagious" disease was clearly brought out by Dr. Richardson and other observers who have spoken this morning, all of whom have emphasized the point that the disease shows little or no tendency to spread

in crowded districts, in schools, in institutions, in asylums, in camps and in other places where one would expect a disease spread by contact through secretions of the mouth and nose to spread most readily. We have in mind the fact that many cases of the disease have been brought into asylums and hospitals throughout the State of Massachusetts, in all stages of the infection; yet secondary cases have not occurred under such circumstances. On the contrary the disease prevailed in Massachusetts more particularly in rural and country districts sparsely settled.

Another reason that led us away from the theory of contacts, and made us believe that we were not dealing with a contagious disease in the ordinary sense of that term, was the close analogy between rabies and poliomyelitis. All investigators in laboratories who have worked with these two viruses have been struck with the similarity between rabies and poliomyelitis. Both viruses are diffused widely throughout the body, both exist in special concentration in the central nervous system, both are filterable, etc. Rabies being a wound infection made us conjecture that poliomyelitis may also be similarly transmitted.

Our experience with yellow fever, perhaps more than anything else, influenced us concerning the probable mode of transmission of poliomyelitis. It had been the privilege of one of us to work with yellow fever both before and after the mosquito days, and many analogies came to mind which made us believe that poliomyelitis also was not a contagious disease.

All the various reasons that influenced us in turning from contagion to some other mode of transference need not engage our attention now, for the history of this part of the work has been ably and accurately given by Dr. Richardson in the paper which he has just read. In justice to Dr. Richardson we desire to state that all the essential conclusions of his paper were arrived at before he knew of the results in the laboratory with the monkeys.

The work which we now briefly desire to report consists in exposing monkeys during all stages of the disease to the bites of *Stomoxys calcitrans*. The monkeys were infected in the usual way by bringing an emulsion of a known virus obtained from human sources in direct association with the central nervous system. After the flies had had abundant opportunity to bite these infected monkeys during the various stages of the disease, including the period of incubation, healthy monkeys were then exposed to the bites of these same flies. Of 12 healthy monkeys indications of the disease have been obtained in 6, 3 of them in a virulent form, resulting in death, the other 3 with transient tremblings, partial paralysis, diarrhea and recovery. It is interesting to note that several of the monkeys had diarrhea, therein the disease resembles the human disease more closely than when monkeys are simply inoculated with the virus into the brain, for gastro-intestinal upsets in children are frequently associated with infantile paralysis.

In these experiments it is important, we think, to use the proper technic in order to obtain successful results. The flies should be handled as little as possible. It is much better to handle the monkeys and leave the flies alone. In our experiment the flies were caught in nature, some of them were bred, placed in a large cage about 6 feet long by 5 or 6 feet wide,, and some 3 or 4 feet high. The monkeys are stretched out at full length and wrapped in chicken wire. In this way they can be placed in the cage and the flies have full opportunity to bite. The flies appear to need a feed of blood about every day or two. They sometimes visit water which is kept in the cage, but apparently cannot be indused to eat any other food than the blood. At least, in our experiments, bananas, fruits and other substances exposed apparently were little visited by the flies. Furthermore, in our experiments a very large number of flies were used.

In conclusion we desire simply to summarize the fact that we have apparently transferred the virus of poliomyelitis from monkey to monkey through the bite of the stable fly, *Stomoxys calcitrans*. We would like to emphasize the fact that this does not appear to be simply a mechanical transference, but rather a biological one, requiring a period of extrinsic incubation in the intermediate host.

What conclusions can we draw from these facts? At present it seems to us we would not be justfied in drawing any conclusion—the significance of the facts if confirmed is self-evident.

Correspondence.

EXCRETION OF FORMALDEHYDE.

Mr. Editor: I noted with keen interest an article in the last issue of the JOURNAL on the Burnam's test for indicating the excretion of formaldehyde by the kidneys of patients taking urotropin.

After taking about 25 grains of urotropin daily for five days, my urine was examined by the above test by J. D. Barney and proved to be negative. I repeated this test again in three days, still taking urotropin, and again it proved negative, showing that I did not excrete formaldehyde in the urine. The astonishing simplicity and inexpensiveness of this test ought to appeal to all practitioners using urotropin to any extent.

Truly,

J. LUFTIG, M.D.

APPOINTMENTS.

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE.—Dr. *John Zaborsky*, of the Missouri Medical College, has been appointed professor of children's diseases; *Dr. Paul M. Carrington*, of the College of Physicians and Surgeons, Baltimore, professor of hygiene; *Dr. Joseph Grindon*, of the St. Louis Medical College, professor of dermatology; and *Dr. George Ives*, of Johns Hopkins University, assistant professor of bacteriology.

UNIVERSITY OF SOUTHERN CALIFORNIA.—*Dr. Charles Lincoln Edwards* has been appointed professor of embryology and histology in the medical department.

WESTERN RESERVE UNIVERSITY.—*Thomas Wingate Todd*, M.B., Ch.B., F.R.C.S., lecturer in anatomy at Victoria University, Manchester, England, has been appointed Henry Wilson Payne professor of anatomy in the medical department of Western Reserve University, Cleveland, Ohio.

NOTICE.

THE AMERICAN SURGICAL ASSOCIATION has appointed a committee consisting of Drs. William L. Estes, South Bethlehem, Pa.; Thomas W. Huntington, San Francisco, California; John B. Walker, New York City; Edward Martin, Philadelphia, and John B. Roberts, chairman, 313 S. 17th Street, Philadelphia, to report on The Operative and Non-operative Treatment of Closed and Open Fractures of the Long Bones, and the Value of Radiography in the Study of These Injuries. Surgeons, who have published papers relating to this subject within the last ten years, will confer a favor by sending two reprints to the Chairman of the Committee. If no reprints are available, the titles and places of their publication are desired.

JOHN B. ROBERTS, Chairman,
313 S. 17th Street, Philadelphia.

CENSORS' EXAMINATION.

THE CENSORS OF THE SUFFOLK DISTRICT MEDICAL SOCIETY will meet to examine candidates for admission to the Massachusetts Medical Society at 8 The Fenway, on Thursday, November 14, 1912, at 2 p. m.

Candidates, who must be residents of the Suffolk District, or non-residents of Massachusetts, should make personal application to the Secretary, and present their medical diplomas, at least three days before the examination.

For further particulars, apply between 2 and 3 p. m. to WALTER C. HOWE, *Secretary*,
303 Beacon Street.

RECENT DEATHS.

DR. HIRAM BLISS CROSS, who died on Nov. 1 in Jamaica Plain, was born at Franklin, N. H., on July 9, 1833. After studying for a time in the Harvard Medical School, he entered the Cleveland Homeopathic Medical College, from which he graduated in 1866. In 1871 he settled at South Boston, but soon after removed to Jamaica Plain, where he continued in the practice of his profession until his death. He was a member of the American Institute of Homeopathy, of the Massachusetts Homeopathic Medical Society, of the Boston Homeopathic Medical Society, and of the Hahnemann Society of Cleveland. He is survived by his widow and by an adopted daughter.

DR. WILLIAM HENRY HARLIN, a retired physician of Oceanport, Monmouth County, N. J., died on October 24, at the age of 72 years. He was graduated from the College of Physicians and Surgeons, New York, in 1862, and during the Civil War served for two and a half years in the United States Navy.

DR. JOSEPH FOSTER LAND, who died last week at Erin, Pa., was born in West Dennis, Mass., on June 2, 1838. After receiving his preliminary education in Litchfield and Yarmouth Academies, Maine, he studied medicine for a time at Bowdoin. During the Civil War he served as a volunteer in the Twentieth Maine Regiment of Infantry. Subsequently he resumed his medical studies at Dartmouth, and obtained the degree of M.D. in 1876. He was a member of the American Institute of Homeopathy, of the New York County and State Homeopathic Medical Society, and of the New York Academy of Pathological Science. He was formerly attending physician at the Home for the Friendless in New York City. He is survived by one son.

DR. JOSEPH PFEIFFER, of New York, died on Oct. 31, at the age of 85 years. He was a native of Germany and was graduated from the University of Giessen in 1853. Dr. Pfeiffer had practised in New York for 59 years.

DR. GEORGE MONTGOMERY TUTTLE, who died of angina pectoris on Oct. 29 in New York City, was born at Rochester, N. Y., on Oct. 2, 1856. After receiving his preliminary education in Dresden, Germany, and at Phillips Academy, Andover, Mass., he graduated from Yale in 1877, and in 1880 obtained the degree of M.D. from the College of Physicians and Surgeons, New York. From 1880 to '81 he served as interne at the New York Hospital. From 1881 to '83 he was physician-in-chief of the New York State Immigrant Hospital, and from 1883 to '89 attending physician at the Bellevue Hospital, New York. From 1888 to '93 hs was professor of gynecology at the New York College of Physicians and Surgeons, and from 1884 until his death attending gynecologist at the Roosevelt Hospital. He was a member of the New York Academy of Medicine, the New York County Medical Society, the New York Medical and Surgical Society, the New York Clinical Society, and the Society of the Alumni of the New York Hospital. He is survived by his widow and one daughter.

DR. JOHN W. WOODS, of New York, died in the Polyclinic Hospital, from pneumonia, on Oct. 28. He was 51 years of age, and was graduated from the medical department of New York University in 1892. Dr. Woods was visiting physician to the Northwestern Dispensary, and for the past seven years had been associated with Dr. Adolph Reich in practice.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, OCT. 26, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	12	5
Chicago	—	—	Waltham	7	2
Philadelphia	—	—	Brookline	6	1
St. Louis	—	—	Chicopee	9	4
Baltimore	—	—	Gloucester	1	—
Cleveland	—	—	Medford	8	4
Buffalo	—	—	North Adams	5	1
Pittsburgh	—	—	Northampton	13	0
Cincinnati	—	—	Beverly	1	—
Milwaukee	—	—	Revere	3	—
Washington	—	—	Leominster	3	—
Providence	—	—	Attleboro	4	3
Boston	230	58	Westfield	2	0
Worcester	36	10	Peabody	—	—
Fall River	50	17	Melrose	—	—
Lowell	26	8	Woburn	8	1
Cambridge	16	5	Newburyport	2	1
New Bedford	19	8	Gardner	3	1
Lynn	16	6	Marlboro	2	1
Springfield	24	4	Clinton	3	2
Lawrence	—	—	Milford	—	—
Somerville	22	5	Adams	4	2
Holyoke	15	4	Framingham	—	—
Brockton	9	4	Weymouth	—	—
Malden	6	—	Watertown	1	1
Haverhill	9	2	Southbridge	2	1
Salem	16	—	Plymouth	1	2
Newton	11	2	Webster	1	1
Fitchburg	5	—	Methuen	—	—
Taunton	17	5	Wakefield	—	—
Everett	4	1	Arlington	2	1
Quincy	—	—	Greenfield	4	1
Chelsea	16	3	Winthrop	5	1

Symposium.

TRAUMATISMS OF THE CRANIUM AND SPINAL COLUMN.

NEUROLOGICAL ASPECTS OF INJURIES TO THE CRANIUM AND SPINAL COLUMN.*

BY E. W. TAYLOR, M.D., BOSTON.

INJURIES to the skull and spinal column derive their significance from their effect upon the nerve structures beneath. A discussion of such injuries from the neurological standpoint, therefore demands, in the first place, a diagnosis of the degree and kind of injury which the brain or cord sustains; and, in the second place, a determination of the means for its alleviation. This paper is more particularly concerned with the first of these propositions. For the sake of clearness it is well to consider injuries of the brain and injuries of the cord separately, since the problems involved are essentially different, from the point of view both of structure and function.

INJURIES TO THE CRANIUM.

As suggested above, an injury to the skull is not to be estimated by the amount of damage done the bone, but rather by the degree of disturbance occasioned the nerve structures beneath. It is evident, for example, that a fracture of the skull with displacement of bone may be of far less import to the individual than a blow, leaving no external trace, but causing more or less destruction of the brain. In other words, apart from the largely mechanical question of surgical treatment, what happens to the brain or the cord, as may be the case, is of vital importance, and this, if it be desirable to make such distinctions, is a neurological matter. The question of the diagnosis of the extent and character of the brain injury is, therefore, of immediate practical concern, and usually must be determined with reasonable haste, if the best good of the patient is to be subserved. Speaking generally, the violence of the blow and its location are of importance in determining the extent of the brain injury. Other things being equal, naturally the harder the blow, the more damage is likely to result, both to the skull and underlying brain, although this is by no means a necessary consequence, since the location of the impact necessarily modifies its result. A very violent blow on the resistant vault of the skull is, for example, much less likely to lead to serious consequences than a decidedly lighter one at a point where the skull is thin, for example, in the temporal region; or at a more vital area, as the region of the oblongata. Regarded from the neurological standpoint injuries to the skull may properly be classified in relation, first, to the immediate general effect upon the brain; and, secondly, in relation to the subsequent or permanent damage resulting to the organ as a whole or to any of its parts. As in a consideration of all disturbances of the brain, it is well to keep sharply in mind the distinction between general and focal symptoms.

GENERAL SYMPTOMS.

Among the general symptoms on the part of the brain resulting from violence, disturbances of consciousness, broadly speaking, unquestionably take first place. Such disturbances may range from slight confusion to deep and irremediable coma. If the blow be relatively slight, the patient quickly recovers normal consciousness, usually accompanied by headache, vertigo, vomiting and pallor. If the blow be more severe, the pulse and respiration are not unlikely to show alteration; but it is undoubtedly true that too much stress should not be laid upon these phenomena even in conditions of deep coma. In still more severe injuries of the general sort now under consideration, the coma deepens, the pupils become unresponsive to light, the breathing is labored, the patient cannot be roused by any sort of pain stimulus and death results under conditions of deepening unconsciousness. In the milder cases complete recovery not infrequently takes place, and this may even happen in cases of long-continued stupor. On the other hand, it should be borne in mind that even in instances of relatively slight apparent injury with transient disturbance of consciousness results of a more or less serious sort may persist for long periods of time. It should also be remembered that in certain instances of brain injury through violence, irrespective of hemorrhage from superficial arteries, the symptoms may be relatively slow in developing, and are undoubtedly in such instances to be attributed to the secondary results of edema rather than to the immediate violence of the impact. A brief report of certain illustrative cases will perhaps render these matters clearer than a didactic and detailed narration of symptoms.

A student of 18 of strong physique, while playing football, was struck on the back of the head. He did not fall, and continued playing. At the end of a few minutes he began to have headache and loss of strength, and, feeling that he was not doing justice to the game, asked to be relieved. He walked off the field with no special sense of discomfort beyond that mentioned. He at once went out of town, was nauseated and felt badly, but beyond a temporary undue emotionalism had no special disturbance of consciousness. He vomited more or less for a day or two; then gradually improved with returning appetite. A week after his apparently slight injury he attended the Yale-Harvard game, considering himself well. The excitement was considerable; he sat up rather late that night, and the following morning again felt ill, vomited, had much occipital and some frontal pain and was obliged to go to bed. Examination showed dilated

* Read at the meeting of The Massachusetts Medical Society, June 11, 1912.

pupils with retained light reaction, and normal fields and fundus. The pulse was 60; the heart was enlarged, owing no doubt to his previous strenuous exercise; the blood pressure was 125. There was no temperature or sign of focal disturbance. Vomiting persisted, the pulse went down to 46, and remained at that point for several days. Improvement was very gradual, but after complete rest, for the most part in bed, careful regulation of his diet, and avoidance of excitement of all sorts, his recovery was complete.

This case presents several somewhat unusual features. The original injury was slight to all appearances, and there can be little question that had rest been enforced from the first, the relapse would not have taken place. The lesson such a case teaches is the desirability of insisting upon complete relaxation both of body and mind for a very considerable period even after apparently slight injuries to the head.[1]

A boy of 14 fell from a trapeze, striking his back and head. He lay still for a moment in a dazed mental state. He was able to get up in three or four minutes, walk into the house, talk naturally, but was evidently slightly confused. He was pale but otherwise showed no abnormality. He was soon able to walk nearly half a mile, but then complained of feeling sleepy, and lost his sense of orientation. He was brought home, still able to walk, but confused. He quickly developed a difficulty in walking, and increasing mental confusion. He evidently did not know what he was doing and, at the end of about two hours, became delirious, resistive and incoherent. He was violent, profane and difficult to control. From this state he sank into a stupor. When I saw him, about seven hours after his fall, he could be roused with difficulty, gave his name, made some intelligible remarks, but was dazed, confused, and frightened, without knowledge of what had happened to him. The physical examination showed no significant abnormality. His pulse was 78 and slightly irregular. Half an hour later, he recognized a friend and called him by name and, from that time on, steadily improved and recovered completely without further complication.

This case illustrates a somewhat more severe injury than the foregoing, and again emphasizes the lesson, difficult to learn, that even after comparatively slight injuries to the head, complete rest is demanded. Here again, it is at least possible that had the boy been put to bed, the somewhat alarming development of his symptoms might have been averted.

A girl of 25 was found lying in the road beneath a horse which she had been riding. There were slight abrasions on the side of the face and back of the hands, but no further evidence of injury. She was taken to a house in a semiconscious condition. At the end of a half hour, she vomited profusely, and sank into stuporous state, from which, however, she could be roused. Further examination disclosed a slight and apparently painful hematoma behind the left ear, without discoverable fracture. The pulse on the day of the accident was 83. It steadily declined until on the third day it reached 52, remaining at this rate for eleven days. It then began to rise somewhat and, at the end of another week, was between 70 and 80. During all this patient remained deeply stuporous but developed no focal signs whatever. Recovery was ultimately complete.

The unusual feature of this case was the long continuance of an extremely slow pulse in spite of gradual tendency toward improvement. This criterion of pressure is by no means constant and should not be given undue weight in prognosis.

These cases are all examples of the general symptoms resulting from head injuries of varying degrees of severity. None of them showed the slightest evidence of localized injury to the brain, and all three recovered completely without complications of any sort. This is the usual outcome in cases of this character, but the prognosis must always be regarded with doubt until consciousness is fully restored and the accompanying symptoms have subsided. In the first case, disturbance of consciousness played a subordinate role, and vomiting with slow pulse was the most persistent and annoying symptom. In the second a confused mental state dominated the clinical picture; and in the third, together with a long-continued stupor, a persistent, slow pulse was the most striking sign. From these cases, selected as examples from a much larger group, it will be seen that a wide and often inexplicable variation of symptomatology is to be expected, and that no special prognostic importance should be given to any one sign in cases of this relatively mild type.

It is important to consider in this connection what happens to the brain under traumatism of this degree of severity. It may be said, without likelihood of contradiction, that the disturbance is primarily circulatory in character. The exact mechanism by which circulatory disorder is brought about, as the result of blows, is little understood and is not pertinent to this discussion. The term *concussion* or *commotion* of the brain, although inaccurate as a pathological designation, nevertheless, from a practical standpoint expresses the situation with a fair degree of exactness. It is to be presumed that the circulation, through vasomotor or other influences, is so far disturbed that the highest function of the brain—namely, consciousness—is affected in greater or less degree. There is much evidence, as pointed out by Cannon and others, that this is due to an edema, the extent of which determines the degree of disturbed consciousness. A practical criterion of the outcome of such cases as we have hitherto considered lies in the course which the disturbance of consciousness takes. This is particularly well illustrated by the second case, in which the patient after a fall of moderate severity was able to walk and talk with a certain degree of rationality; a condition which later passed into a state of confusion and increased disturbance of consciousness, no doubt

[1] Krause: Chirurgie des Gehirns and Rückenmarks. Berlin, 1911, p. 630.

an indication that the edema was increasing, though by no means to the point where life was actually in danger. In all such cases, however, one should be skeptical of the outcome until a distinct change for the better in this respect has taken place. Under proper treatment, chiefly by rest, a recrudescence of the edema is not likely to occur when once improvement has begun.

The determination of treatment is often a matter requiring much judgment and discretion. The conventional ice bag, purgation and similar stereotyped methods no doubt are of little avail. The one absolutely important measure is to insist upon complete relaxation in bed, with the avoidance of anything likely to disturb the patient. Unless the original injury is of such character that signs of increasing intracranial pressure become manifest, nature without the assistance of drugs will prove the best restorative. If, on the other hand, the patient is manifestly growing worse, with deepening coma, the all important question of surgical intervention presents itself. In the absence of compound or comminuted fracture, or other immediate surgical indication, the greatest conservatism should be practiced in attempting decompression in cases of ordinary so-called concussion. The brain is capable of standing a very considerable degree of edema without succumbing to the pressure, and it is more than likely that in certain cases the added traumatism of an operation, however skilfully conducted, is sufficient to turn the balance against the patient. In this type of case, therefore, decompression, in my judgment, is justified only when the signs of pressure are manifestly increasing; and even then, not until it has become evident that the patient is not likely to survive without radical interference. In the second case quoted operation was considered only to be dismissed, for the reason that the boy, although clearly growing worse over a period of several hours, still was far from being deeply unconscious and showed no signs of immediate dissolution. The event justified conservatism, as shown by the remarkably rapid recovery after the symptoms had advanced to a certain somewhat alarming, though not threatening, point. In the third case, a surgeon was summoned and the question of shaving the head preparatory to operation was seriously considered. Here, again, the waiting policy was entirely justified by the gradual but steady improvement in the patient's condition. The one consideration in favor of conservatism in this case was that, although the patient was very stuporous, she still did not show any indication that this mental state was increasing. In general, therefore, it may be said that the most important determining factor in the prognosis of cerebral injuries manifesting themselves by general symptoms is, put in commonplace language, whether the patient is improving or not, such improvement being estimated by the condition of consciousness.

Although a sharp grouping into classes is neither practical nor desirable, it nevertheless conduces to clearness to make certain more or less artificial distinctions. In a second group we may, therefore, place those cases in which the injury to the brain has been so severe that actual laceration, together with multiple hemorrhage, presumably has taken place. Such injuries are often, though by no means invariably, associated with fracture of the skull,[2] either compound and comminuted, or of the simple linear variety. The general symptoms of such severe traumatisms are similar to those described for the slighter injuries, but naturally, much more marked in degree. The coma is often profound from the moment of reception of the blow, and the criterion of the degree of disturbed consciousness is naturally, therefore, minimized in importance. Apart from the general edema, which no doubt is the usual cause of death, the immediate injury of certain functionally important parts of the brain assumes increasing significance. It is, however, extraordinary how great a degree of destruction may occur in the cortex if a silent area be involved without occasioning undue disturbance to the patient or leading to any permanent defect. The following case is a very striking example of this fact, and also illustrates certain features of severe traumatisms to the skull.

A boy of ten was struck by an automobile, producing an extensive fracture of the skull in the left posterior parietal region. He was not deeply unconscious, and there was no immediate vomiting or convulsion. The dura was badly lacerated and the brain substance oozed freely from the wound. There was, however, no extensive hemorrhage at the site of injury. Splintered bone was removed by a physician, and the skin of the scalp stitched together. After a few days the temperature rose to nearly 103 degrees.[3] When I saw him, the fourth day after the accident, he had not recovered consciousness, but was able to swallow and ate with apparent relish. He had not spoken since the injury. Between the stitches of the scalp wound apparently uninfected brain substance was oozing. During the examination there was constant twitching of the right facial muscles, constant spasm of the right arm, conjugate deviation of the eyes toward the right and extreme nystagmus. The pupils reacted to light. There was paralysis of the right leg, with definite Babinski response. The patient was deeply stuporous but could be roused, though not to the point of speaking. Beyond a liberal administration of urotropin, and scrupulous surgical cleanliness, together with rest, no treatment was instituted. The boy made an uninterrupted recovery, and apart from a slight disturbance in speech was well at the last report.

This case is an example of the general group in which a violent blow on the skull with ex-

[2] No reference is made in this paper to gunshot wounds and their consequences, nor to the details of the effect of fracture. For a valuable discussion of "Fracture of the Base of the Skull," see Walton, Boston Medical and Surgical Journal, 1904, cli, 641. In this paper Walton lays stress on the importance of inequality and immobility of pupils as a grave prognostic sign of fracture.

[3] In the absence of meningeal or other infection, an elevated temperature points to cerebral laceration, and is not necessarily a bad prognostic sign.

tensive laceration of brain substance, but without involvement of functionally important areas leads to no permanent disturbance. The irritative phenomena which developed soon after the injury indicate that the brain as a whole and particularly the motor areas were involved in the general contusion or, at least, were the seat of very definite localized edema. Apart from the immediate surgical intervention which the compound fracture necessitated, the outcome demonstrated the wisdom of allowing natural processes to care for the manifest edema and intracranial pressure. It is at least possible in this instance that the opening in the skull caused by the original injury and subsequent removal of bone, aided in recovery, alarming as the appearance seemed to be. Such instances as this might easily be multiplied[4] but this is unnecessary since they all illustrate a type of injury characterized by extensive laceration and even disintegration of portions of the brain. Here again, regarding the matter from a neurological standpoint, the important considerations are whether in such cases the brain has been so far damaged that it can no longer sustain life, and whether artificial means should be adopted to assist the natural processes of repair and ultimate recovery. There is no doubt room for difference of opinion as to the proper treatment of such cases. I am aware that there is a growing feeling on the part of surgeons particularly, that surgical intervention by means of extensive decompression is harmless in itself and may avert the dangers of increasing edema. This is a matter in which no definite rules of procedure can be laid down; each case must be decided on its merits: but considering the matter from a non-surgical standpoint, I am still strongly inclined toward conservatism for reasons already stated. If, however, a decompression is attempted, the opening in the skull should be extremely liberal, and if the condition of the patient warrants, an opening may well be made on both sides. It leads beyond the scope of this paper to discuss these indications in detail; but the general statement may be made that in desperate cases, such radical procedure is not only admissible, but actually demanded. If, however, the patient shows no manifest change for the worse at the end of twenty-four or forty-eight hours, operation should at least be delayed, or lumbar puncture performed as a possible palliative measure.

A far more difficult class of cases is that in which the original injury is significant, not only because of the immediate danger to life but also because of injury to functionally important parts of the brain. I pass over the large group of focal hemorrhages, particularly from the middle meningeal artery, usually easy of diagnosis and definite as regards treatment. An interval of consciousness followed by deepening coma with manifest involvement of the motor area of one side constitutes a symptom complex which demands immediate surgical intervention.

In the absence of definite focal signs pointing to the site of the lesion the question of procedure often becomes one of extreme difficulty, as illustrated by the following case:

A man of 30 fell January 16 on icy steps, striking the side and back of his head. He was able to get up, went into the house, and asked to have a physician called. The accident happened at half past seven in the evening and, at the end of half an hour or thereabouts, he became unconscious, recovering consciousness again at midnight. There was bleeding from both ears and both nostrils with leakage of cerebrospinal fluid from the ears, and probably also from the nostrils. The left pupil was dilated and without reaction. Respiration was of the Cheyne-Stokes type, ranging from two to twenty-five a minute. When he recovered consciousness he apparently understood what was going on about him and what was said to him, but was totally aphasic. At the end of two days paralysis and anesthesia of the right hand and foot developed, sparing the face. There was increased knee-jerk and wrist jerk on the right, together with an ankle clonus. He was seen in consultation by Dr. John Homans, the second day after the injury. Dr. Homans decided not to attempt an operation in spite of the clearly demonstrated skull fracture and evidence of focal disturbance on the left side of the brain as shown by the paralysis and aphasia. The patient soon after developed false ideas of a persecutory character, and on several occasions entirely lost his self-control. He drove through the town brandishing the remains of a gun, and also made a definite attack upon his physician with a pistol. He was entirely unable to express himself, owing to damage to the speech area. In addition to these difficulties he had a troublesome diplopia, some difficulty in swallowing and in micturition. At the end of ten days he was able to repeat words of one syllable. His memory for recent events was lost and he also had the characteristic retrograde amnesia for events immediately preceding the fall. Up to the time I saw him, on February 6, about three weeks after the accident, he had improved somewhat in all respects, but his speech and memory remained defective, his self-control was imperfect and he was often menacing in manner and action. When examined three weeks after the onset, he had slight weakness of the left internal rectus, of the muscles of the right motor fifth distribution and a paresis of both seventh nerves, more marked on the right. The fundus was normal. His pulse was 76, regular and the blood pressure 125. There was slight ataxia of the hands, but sensation and motion were in general normal. The knee-jerks were normal but active, and the other reflexes unchanged. Spontaneous speech was possible, and he was able to repeat test sentences without mistake. Further examination showed an entire incapacity to name objects held before him, although he appeared to recognize the use to which such objects were put. He also had total incapacity to read and was unable even to name individual letters. He could not write his own name. On the other hand, ordinary conversation he appeared to understand. Complex orders he was entirely unable to perform, and he showed confusion in simpler ones; as, for example, the difference between his right and his

[4] A case of much interest in this connection has been reported in detail by Walton and Brewster: "Fracture of Skull, Probably Involving the Base; Recovery after Operation; Analysis of the Aphasia," BOSTON MEDICAL AND SURGICAL JOURNAL, 1906, cliv, 630.

left hand. There was in general a very surprising contrast between his capacity for spontaneous speech even to the extent of carrying on a reasonably intelligent conversation, and the defects enumerated above. In spite of the fact that he had considerable insight into his condition, certain definite delusions persisted, together with periods of considerable excitement. He had improved materially and a somewhat favorable prognosis was given. His excitement, however, persisted, particularly at night, necessitating his removal to a special hospital, where, after a protracted period of mental aberration, he finally, after several months, recovered sufficiently to be discharged. His present condition is not definitely known.

This case may serve as an example of a group in which severe contusion of the brain takes place, accompanied by fracture and definite focal symptoms. The interval of consciousness, brief though it was, is interesting in view of the violence of the blow. No doubt this is to be explained by the rapid development of edema and blood extravasation, the full extent of which was relieved somewhat by the escape both of blood and cerebrospinal fluid through the ears and nostrils. The fact, however, to which special attention should be drawn was the serious after effects of the injury, and particularly the paralyses, aphasia and mental disturbances.

v. Monakow[5] has made an admirable distinction between permanent or residual and temporary symptoms as a result of traumatism or other injury to the brain. By permanent symptoms he means those which are not due to the shock of the original injury but which remain as evidence of definite focal lesion. He finds that such residual symptoms are far less in degree than one ordinarily expects. On the other hand, temporary symptoms due to what he terms the action of diaschisis are at first extremely pronounced, and later, as the effect of the shock wears off and the brain is able to readjust itself, disappear. This distinction, always vaguely recognized but very explicitly stated by v. Monakow, should certainly be borne in mind in estimating the outcome in such a case as that quoted above. Even the paralyses and the aphasia, apparently indicating serious destruction of the areas of motion and speech, were in this case temporary symptoms, which natural processes were quite able to rectify without surgical intervention. Dr. Homans' judgment in the case was, therefore, entirely justified by the event.

In general, it may be assumed that such focal symptoms as were observed in this case were due to laceration or hemorrhages within the brain substance. It may be taken, as a fair differential point between so-called concussion and actual contusion of the brain, that in the former case focal symptoms are not likely to occur, whereas in the latter, they are often a conspicuous feature of the clinical picture. However definite such focal symptoms may be at the beginning one should be conservative in predicting their permanency, as illustrated by the case under consideration. It is coming to be recognized that the brain may suffer a very considerable degree of injury, sufficient to produce marked defects in the way of paralysis, aphasia and the like, and yet recovery may be complete.[6] The explanation for this is to be sought partly on the basis of the theory elaborated by v. Monakow, and partly that the destruction is apparent rather than real, and that the cortex is by no means deprived of functional efficiency. An analogy may easily be found in the extraordinary improvement in hemiplegia following capsular lesion, in the often unexpected recovery from poliomyelitis, or more striking still, as recently described by Horsley, in the return of function after a complete excision of a so-called motor area.[7] The practical lesson to be learned from these facts is that in spite of extensive focal disturbance the recovery from a brain injury may be essentially complete.

A far more subtle question is involved in the mental disturbances which may follow traumatisms to the skull with consequent injury to the brain, as in the case just quoted. Here we are on wholly uncertain ground inasmuch as nothing definite is known regarding the location of the higher physical functions. In spite of the evidence afforded by the famous "crowbar case," tumors in the prefrontal region and other lesions of that portion of the brain, we are as yet far from asserting that the frontal lobes constitute the only or even the essential psychical area. It is even going too far to diagnosticate lesions of this portion of the brain when mental symptoms are conspicuous, although the suspicion is justified that this portion of the brain at least takes part in the general disturbance. The persistence of mental symptoms after head injuries is by no means uncommon, even to the extent of definite delusion formation. Inasmuch as we know little of the mechanism of the development of such symptoms, we can say even less of their probable permanence. In giving a prognosis it is as well, therefore, to be conservative and never to deny the possibility that some mental defect may persist for a long period, or even permanently.

It would carry us too far to discuss at this time the various possibilities of focal lesions. It is sufficiently evident that traumatisms of the skull may be of so varied a character that any portion of the brain may be involved sufficiently to give rise to localizing signs.[8] Inasmuch as such signs are frequently transitory and usually do not permit of immediate operation for their relief, it is well to fix our attention upon the later and more permanent results, or the so-

[5] v. Monakow: Neue Gesichtspunkte in der Frage nach der Localization im Grosshirn. Wiesbaden, 1911. Correspondenzb. f. Schweizer Aerzte, 1909, No. 12.

[6] Walton and Brewster loc. cit.

[7] Horsley: "The Function of the So-called Motor Area of the Brain," Linacre Lecture, Brit. Med. Jour., July 17, 1909, p. 125.

[8] In an analysis of 500 cases of intracranial injury, Phelps found that in 286 cases of basal fracture, 110 recovered and 176 died; of 116 cases of fracture confined to the vertex 95 recovered and 41 died; of 98 cases not accompanied by fracture 41 recovered and 57 died. "Traumatic Injuries of the Brain and Its Membranes," Appleton, 1897.

called residual symptoms of v. Monakow. Here again, the time does not permit entering into details, but the general subject should not be passed over without reference to perhaps the most important and distressing of the permanent results of brain injury, namely, epilepsy. It is an established fact that traumatisms resulting in permanent injury to the motor cortex not infrequently gives rise to epileptiform seizures, usually of the Jacksonian type. This again should be borne in mind by the physician in giving a prognosis, particularly in those cases where there has been early and manifest invasion of the motor cortex. Opinions differ as to the advisability of subsequent operation in cases manifesting Jacksonian attacks; but no doubt the weight of opinion is with Krause and other surgeons, who advocate exploration, particularly if there is evidence of local injury to the bone. It is, however, a much simpler matter to discover the source of irritation than to relieve it permanently by surgical means. A final group of cases, the importance of which has been much underestimated is that in which traumatisms to the skull result in disabling nervous conditions, to which the somewhat abused term "traumatic neurosis" may properly be applied. It has been my lot, for example, to see a number of firemen in part or wholly incapacitated by injuries of the character under consideration. Of these the following is a typical example:



FIG. 1. Extreme dislocation of a vertebral body as the result of a fall, with consequent destruction of the cord by the impinging bone. The specimen illustrates the method of narrowing of the spinal canal, and the formation of a kyphos.



FIG. 2. Disintegration of vertebral body with crush of the cord due to striking the head in diving. The mechanism of the cord injury is well shown in this specimen.

An officer in the Boston Fire Department, 41 years old, of exceptional physique, on February 7, 1910, while working at a fire fell down a flight of stairs, presumably striking his back and the back of his head. He was able to get up, and to continue on duty that day and part of the next. He then began to have pain in his head, and was so far incapacitated that he did not return to duty. He became very nervous, tremulous, unsteady on his feet, had much headache and photophobia. His skull was not fractured, and his body showed no noteworthy bruises. Examination showed a rapid pulse, somewhat high blood tension, deep reflexes exceedingly active, a staggering gait, cold hands, depressed appearance, but without the development of special phobias. He was an exceptionally muscular man, weighing about 230 pounds, and in addition to his work in the Fire Department, had been studying law at night. He was much relieved by explanation, reassurance and general encouragement. He returned to work and was apparently well except for some slight tremor of the right hand, and increased irritability. On January 14, 1912, he with other firemen was penned into a room in an upper story during a fire, from which escape seemed impossible. While in this predicament he was struck presumably by a beam from the falling roof,

his helmet being crushed down on his head, causing a superficial injury to his scalp in the median line. He was finally rescued in an unconscious condition, and remained stuporous for two days. There was, however, no paralysis, or other sign of focal brain disturbance. After this second accident he remained dull and apathetic, speaking and eating little. He complained of photophobia and vertigo, and showed periods of some excitement, particularly when a fire engine went by his house. He had much pain at the back of the head, and lay for the most part with his eyes closed, showing little interest in his surroundings. His general demeanor was one of dejection and vague depression. He, however, made very few definite complaints. The tremor of the right arm noticed after the first accident greatly increased in intensity, and he later also developed weakness undoubtedly functional in character of both the anterior and posterior muscles of the left leg. In spite of rest, a long stay in the country, and vigorous psychotherapeutic treatment he has remained essentially the same, and is totally unable to resume his work. He has lost much in weight, and has the appearance of having passed through a serious illness. Mentally, he has a clear insight into his condition, there is no delusion formation, but he remains totally ineffectual both mentally and physically, and it seems probable that he will have to be retired from the service.

In another instance, a fireman of equally robust build and apparent nervous stability, after an accident at a fire which rendered him unconscious, developed various phobias and psychasthenic symptoms which after patient but ineffectual efforts at relief finally necessitated his retirement.

Such cases as these are certainly of the greatest importance both from a practical and theoretic standpoint. The mechanism of the production of such neurotic states cannot now be considered, but the fact remains that in men of exceptional vigor and nervous stability, a blow on the head may produce a permanent disability of a functional sort, which in my experience is extremely difficult to treat and far more unyielding to recognized methods than similar conditions in other persons and due to other causes.

The following practical conclusions from a study of head injuries are justified:

The outcome of a blow on the head is not to be estimated by the extent of manifest brain injury.

Fracture of the skull is not in itself of grave import.

Immediate prognosis is to be determined largely by the condition of consciousness; if the patient holds his own or improves in this respect, the outcome as regards life is in general favorable; if the coma deepens, the prognosis must be considered grave.

Focal symptoms indicating laceration are not necessarily serious complications; unless the damage to the brain be extensive, such focal signs are apt to improve or wholly disappear.

The possibility of late epilepsy and more or less permanent mental symptoms of neurotic states should always be considered.



FIG. 3. Probable extra-dural hemorrhage; an extremely unusual result of trauma. The cord beneath also greatly damaged. The patient lived many years and the blood clot was completely organized. Operation would undoubtedly have resulted in benefit in this case.

Rest is the first essential of treatment.

Surgical intervention should be practised with conservatism.

INJURIES TO THE SPINAL COLUMN.

Injuries to the spinal column, like injuries to the brain, derive their significance from damage to the nerve substance beneath. These injuries are incapacitating but not immediately dangerous to life unless localized in the upper cervical region.

The question has been raised whether it is possible for a blow on the spinal column insufficient to produce fracture or dislocation, to lead to a condition analogous to what has been spoken of as "concussion"; or whether in such cases, an actual hemorrhage in the substance of the cord takes place. This query cannot be definitely answered, but it is at least reasonable to presume that a condition similar to concussion of the brain, producing very possibly microscopic alterations, may occur in the cord without manifest hemorrhage. The following case suggests such a condition, although some slight de-

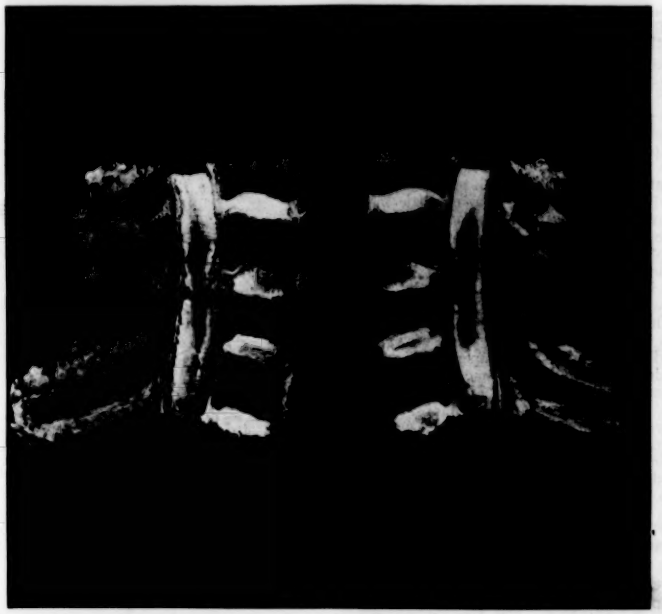


FIG. 4. Central hematomyelia resulting from injury to the spine. It will be noted that the cartilage is loosened from its attachment to the vertebral body, but that the lumen of the vertebral canal is not greatly diminished.

fects remain, presumably pointing to a permanent structural defect of mild degree:

A fisherman struck his head violently against a boom. He was thrown down, striking the back of his head but did not lose consciousness. He was forthwith unable to move arms or legs and experienced a sensation of numbness over the body and extremities. In twenty minutes sensation began to return in the left hand and arm, and this improvement continued until there was slight evidence remaining of disturbed sensation. The motor power both of arms and legs also returned in great measure, but with persistent alteration of certain of the reflexes.

In this case it is safe to assume that the injury was of the nature of so-called concussion, very possibly associated with edema, and some exudation, whether hemorrhagic or not naturally cannot be stated. The point of importance is that apparently complete transverse lesions of the cord may under certain circumstances be due to the effects of concussion with good prognosis.

Between this milder type of cord disturbance from trauma and a complete disintegration of the cord, all possible gradations may exist. The more severe damage is usually due to fractures and fracture dislocations bringing about a crush of the cord through impinging bone or cartilage. The mechanics of the spine are such that immediate injury to the cord is usually due to the forward dislocation of a vertebral body rather than to fracture of an arch or lamina. In these cases, which constitute the larger proportion, free hemorrhage outside the cord is conspicuously absent. It is exceedingly rare to find any material extravasation of blood, either in the extra- or subdural space. The damage is almost invariably to the cord itself and consists of a crushing injury with such hemorrhage as an injury of this character would necessarily entail.

The following case is typical:

A young woman athlete, while performing on a high trapeze, fell 30 feet into a net, striking in such a way that her head was bent violently forward, producing a fracture in the region of the sixth cervical segment. A complete paralysis of sensation, motion and the sphincters forthwith developed. She was operated upon immediately, the laminectomy disclosing a crushed and softened cord without external hemorrhage. The patient died on the third day. Sections of the cord at various levels at, above and below the seat of crush disclosed no free hemorrhage whatever. The pathological condition is sufficiently shown by the accompanying photographs.

Attention should particularly be called to the tubular hemorrhage within the substance of the cord, extending far down into the thoracic region. Although this case would undoubtedly have proved fatal, it is probable that the laminectomy added to the extreme shock of the original lesion hastened her death; at least, as the autopsy showed, nothing was accomplished by this early operation. This is the usual experience, and perhaps even more than in the case of the brain, surgical conservatism is demanded. The shock of extensive laminectomy in the cervical region is no doubt greater than below, owing to the proximity of certain nerves concerned with respiration.

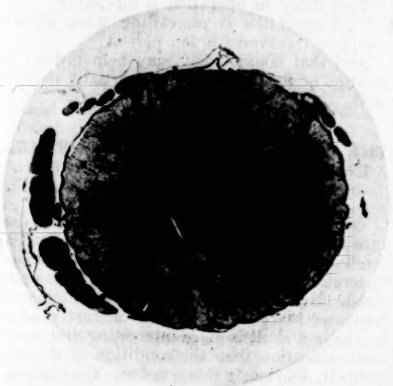


Fig. 5. Fall from a trapeze. Section cervical region, above the point of greatest injury. Hemorrhage in the posterior columns, and a slight hemorrhage in one lateral tract; none in the gray matter. Exterior of the cord perfectly normal.

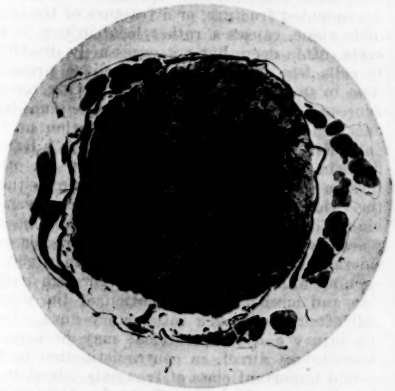


Fig. 6. Fall from a trapeze, bending the head violently forward on the neck. Crush of the spinal cord, lower cervical region, at the level of greatest intensity. Note the disintegration of the cord substance and hemorrhage within the cord. The absence of hemorrhage in the sub-dural space is noteworthy.



Fig. 7. Fall from a trapeze. Thoracic region below the point of greatest injury. Slight distortion of gray matter, and large tubular hemorrhage in the dorsal columns.

The neurologist is ordinarily called up to determine the location and extent of the injury and to advise as to its operative treatment. The localization of cord segments has been so accurately mapped out by various students of the subject that the question of the diagnosis of the height of a lesion presents few difficulties. The general rule must not be forgotten that, from above downward, the nerves leave the spinal column at increasingly greater distances from the segments in which they originate; from which it naturally follows that the attempt to expose a lesion must take accurate account of this fact. A more difficult matter to decide is the extent of the lesion in any given case. Immediately following the receipt of a violent blow on the spine, the signs of so-called complete transverse destruction of the cord are apt to supervene as, for example, in both the cases cited above. It is, therefore, not possible immediately to determine the amount of damage done the cord. This being the case it is essential to wait at least twenty-four to forty-eight hours before a decision is reached. The evidence at our disposal goes to show that whatever permanent damage is done is immediate, and that the element of gradual pressure upon which much insistence has at times been laid is fancied rather than real. If this be true no detriment to the patient will result from delay. It is my belief that immediate operation may at times so far increase the shock already sustained as to hasten a fatal outcome. It has been suggested that an immediate laminectomy for cord

injury is as much of an emergency operation as one for an acute appendicitis. This radical position is certainly not borne out by the facts nor by the pathological findings. Delay in surgical intervention is, therefore, always to be advised except in those relatively rare instances in which there is pain with definite fracture of the spines or laminæ, which through displacement might still further injure the already damaged cord. In the absence of such indications delay is not only justified but desirable in the determination of a more exact diagnosis. During this period the patient should be carefully protected to avoid possible bony displacements. If at the end of forty-eight hours there is absolute loss of sensation, motion, and sphincter control below the seat of the lesion, together with abolition of deep reflexes, it may be presumed with a fair degree of certainty that the cord is irremediably damaged. If, on the other hand, signs of improvement begin to show themselves and the patient's condition justifies the operation, a laminectomy may be indicated. Perhaps even more than in the case of the skull the improvement in the technic of spinal surgery permits recourse to operation in these desperate cases; and it is probable that the removal of the posterior portion of several vertebræ permits the cord a better opportunity to recover its function. Certainly the operation is relatively devoid of danger in skilled hands. In general, therefore, regarding the matter as I am expected to do from a neurological standpoint, presumable complete destruction of the cord is inoperable in the sense that recovery in any event is impossible. In spite of much experimental work on the subject, and the occasional report of cases seeming to controvert this testimony, evidence is still wholly lacking that the cord has any power whatever of regeneration. All that can be hoped, therefore, is to give such fibers and elements as remain intact the best possible opportunity for the resumption of their normal function. If the signs point toward the persistence of certain tracts, it is altogether probable that their further restoration may be aided by the removal of constricting bone. This appears to be the justification for laminectomy. It should also be said in this connection that a readiness to resort to operation should be determined in part at least by the location of the lesion. Cervical lesions of extreme degree are almost invariably fatal. Lesions in the thoracic cord and at the lower levels do not threaten life except through probable complications, cystitis and the like; considering, therefore, the inevitable disability, carefully considered but radical measures are often justified.

We may conclude from a study of the clinical disturbances and pathological findings in traumatic injuries of the cord:

That hemorrhage external to the cord is unusual and need not be seriously considered in deciding upon operation;

That concussion of the cord without definite microscopic lesions is a possibility;

That the damage to the cord is immediate following the injury;

That delay in operation is advisable;

That operation is unavailing when signs of complete transverse lesion persist;

And that laminectomy may help toward restoration of the functions of a partially damaged cord.

THE SURGICAL TREATMENT OF HEAD INJURIES AFFECTING THE BRAIN.*

BY JOHN HOMANS, M.D., BOSTON.

THOUGH the surgical treatment of skull fracture is far from being a modern procedure, the intelligent application of physiological principles to cerebral injury is, in reality, but little understood. Much of the present day teaching would lead one to believe that the character of the breaks in a skull is more interesting and worthy of classification than the condition of the brain inside it. Obviously this is not so. Yet violence of certain kinds tends to produce certain types of fracture, and with some regularity certain types of brain injury as well. Therefore, correctly to interpret any traumatic disturbance of the brain one must understand the mechanism of skull fractures and their association with the external signs. Broadly speaking, there are only two important varieties, the indented fracture, and that produced by a bursting force.

Any solid object meeting the skull with sufficient force is apt to indent it. If the object is small, the bone is punctured; if it is large a considerable part of the skull may be driven in. It is idle to divide these injuries into classes—compound, comminuted, depressed or whatever. An indented fracture, or a fracture of the inner table alone, causes a rather local injury to the brain, often deep, but not necessarily disabling. It calls less for measures to relieve pressure, than to stop hemorrhage, combat sepsis, remove depresesd bone, and at once minimize immediate damage, and forestall future irritation or impairment of the central nervous system. Rather incidentally a deeply lying bullet or other foreign body may be removed. With or without the evidence of an X-Ray, which, however, is highly desirable, such fractures should be explored and repaired. Even when there is a considerable amount of dirt and hair in a gaping opening into the head, careful thorough irrigation and mechanical purification of the wound will often result in a satisfactory cure. Both the injury and the treatment may perhaps be described as direct, in contradistinction to the second important class of traumata, about to be described, in which the effect of a blow is felt at a distance from where it actually meets the skull, and the treatment often ignores the position of the external wound or the fracture itself.

* Read by C. C. Simmons, M.D., at the meeting of The Massachusetts Medical Society, June 11, 1912.

These injuries are the so-called bursting fractures. You will find an excellent discussion and illustrations of these lesions in a paper by Walton,[1] published in the *Annals of Surgery* for 1904. The old view that fractures of the base were produced by contrecoup was succeeded by the irradiation theory of Aran [2] by which blows upon the vault were shown to result in cracks passing into the nearest fossa. The bursting fractures of Hare,[3] von Wahl[4] and others presupposed a force acting upon the sides of the skull and causing its walls to spring.

The impact which produces a bursting fracture does not indent the skull. It spreads the sides and so produces radiating cracks often at a distance from the point of impact. The classic illustration of this principle is the crushing of a rounded, somewhat elastic nut, as a pecan. Under pressure from each end a series of radiating cracks appear, whose general direction is from pole to pole, but whose exact course is determined by the weaker portions of the shell. In the skull these cracks appear to take, in a general way, the direction of the force of the blow, and pass toward the opposite pole.

Now it happens that in the human skull there are certain strong and weak points—buttresses and weaker intermediate portions. As Felizet[5] long ago pointed out, it is through the less protected regions, the three fossæ in fact, that bursting fractures almost invariably run, and external evidence of the cracks in these fossæ is often comparatively easy to obtain. You are all doubtless familiar with the bleeding from the ear which accompanies fracture of the base, but you do not always associate this sign with a fracture running from near the middle line through the petrous portion of the temporal bone (taking in the middle ear and rupturing the drum), across the thin temporal fossa and out across the vault of the skull. The temporal fossa, being the middle one of the three, is naturally the favorite seat of the fracture, but variations in their course are common. The crack may be only an inch or two in length, or it may originate in, or branch into the anterior, or, less frequently, the cerebellar fossa, or it may be, and often is, bilateral.

In so far as these cracks are an indication of the amount the brain is shaken, and a possible cause of a division of the meningeal vessels in accessible regions, they are important, but as mere breaks in the continuity of the skull, they are of little interest.

Returning to the nature of the cerebral injuries produced by this type of blow, it is plain that considerable damage may be done whether or not a fracture is present. Skulls vary with age and other causes in their susceptibility to fracture, and a blow severe enough to bruise and even lacerate the brain may not crack the skull. The effect of a severe blow of this character is spoken of as concussion. This term covers, in an indefinite way, the loss of consciousness, which is its most recognizable sign, and the damage to the medulla, which probably produces its severer manifestations. In a paper of this sort physiological details are out of place. Roughly speaking, disturbance of respiration is most easily brought about, then failure of the vagus control of the heart, and finally lowering of blood pressure due to injury to the vasomotor center. Thus we commonly see loss of consciousness, which, without other signs, is transient; or we see loss of consciousness plus irregular respiration—and with this we should expect a compensatory slow pulse and high blood pressure; or we see unconsciousness and irregular respiration plus a rapid pulse, and then if the vasomotor center does not come to the rescue and raise the blood pressure, the patient dies.

All these we may call the physiological results of concussion. Anatomically there is usually edema, possibly accompanied by fine punctate hemorrhages which cause swelling and hence compression of the brain. Therefore, so far as surgical treatment goes, we have to combat the bad effects of compression, provided the patient survives the initiatory blow. With regard to the time at which this swelling comes on I can only say that I have seen a tremendously edematous brain within three hours of an injury, and a local cortical edema producing paralysis, which only showed its effects ten days afterward.

If we carry the injury further, we may suppose that the brain is so bruised and shaken that it becomes lacerated. This laceration is quite independent of fracture, that is, anatomically, and it probably takes place on the opposite side of the head from which the blow was received. Thus in severe blows upon the occiput or vertex, the inferior part of the frontal and temporal lobes will usually be affected. The laceration is on the surface but often extends several centimeters in depth. With it is more or less abundant hemorrhage from the cortical vessels, that is, hemorrhage into the pia. The effect of this hemorrhage is compression of the brain. The extent of the laceration, the greater part of which is generally inaccessible to surgery, can only be guessed at, not measured from the outside.

Of the immediate signs of laceration there is only one reliable. This is the evidence obtained by lumbar puncture. The cerebrospinal fluid has such a rapid circulation that no bleeding can take place beneath the dura without at once coloring it. If, therefore, we find bloody fluid on lumbar puncture—and it is often surprisingly like clear blood—we know that we have laceration to deal with. This is an immediate sign. Later on there is always a marked elevation of temperature, though this may be rather a result of medullary disturbance and may not appear for from twelve to twenty-four hours.

A third and less common form of injury to which the brain is subject is the compression from dural, or as we usually call it, meningeal hemorrhage. This means nearly always anterior

or middle meningeal hemorrhage. It is the only *direct* result of a bursting fracture, and depends upon the fact that such a fracture most commonly passes through the temporal fossa. The meningeal vessels are thus torn by the break, especially when they groove the bone. They generally bleed outside the dura, and the force of the arterial stream dissects the meninges from the skull, and may form an enormous hematoma extending well up over the parietal region and the motor part of the cortex. The principal signs of such a lesion are, therefore, failing consciousness, and paralysis coming on slowly (sometimes very late) after an injury from which the brain may otherwise be recovering. Such a hemorrhage does not of itself give bloody fluid on lumbar puncture. Therefore, if we have increasing pressure symptoms without bloody fluid, we suspect an extradural hemorrhage. If the fluid is bloody, we have intradural, and we may have extradural as well. In either case, as I shall show you, the only reasonable treatment is the same, so that this latter distinction is hardly important.

RECAPITULATION.

Summing up briefly the pathology of head injuries we may lay down the following rules: More or less local lesions result from indented fractures, and bruising from bursting fractures. Local indentation causes local laceration, and often hemorrhage and sepsis. The immediately disabling, as well as the late effects depend somewhat upon the location of the injury. Bursting fractures are associated with edema, bruising, laceration and occasionally dural hemorrhage. Even blows which do not result in fractures may produce the same effects. These factors all cause compression of the brain, and this compression is associated with signs of disturbance of the medullary centers—alterations in the respiration, pulse rate, and blood pressure.

SYMPTOMS.

I shall not give much time to a description of symptoms. There is no such thing as a constant clinical picture. Any one individual sign is often valueless, and I prefer to take up the indications for treatment and let the symptoms, with which you are all familiar, take care of themselves. It is the combination of signs and the sequence of events which is really important.

Obviously, loss of consciousness is the most fundamental evidence of cerebral damage. Yet this means relative and not absolute loss. You may see a patient within an hour or two after an injury apparently bright—often too bright—and yet he may afterwards have no recollection of the period at which you saw him. Or you may see deep unconsciousness. In either case the *changes* in consciousness, in combination with other signs, are more important than the patient's state of mind at any one time. In general, there is likely to be an improvement after the first shock of the injury is past. If this does not occur, or if unconsciousness deepens, you are dealing with a severe injury.

Other signs of concussion are the alterations in respiration, pulse and blood pressure. Immediately after an injury in combination with loss of consciousness there is usually a depression of the medullary centers (rapid respiration and pulse, and low blood pressure). If the patient is to live they will revive. Therefore, we should expect deep respiration, slow pulse and high blood pressure as compensatory effects after the preliminary depression. Or the injury may be so severe that this compensation is impossible. A low temperature, followed by a rise to, or above normal, is a common early sign, but a rapidly rising temperature, to 105 or 108 degrees, is evidence of a very severe disturbance. The symptoms of compression are usually supposed to be like those of brain tumor: headache, vomiting, choked disc, high blood pressure, increased reflexes, spastic limbs, and so on, but as in brain tumor, are, on the whole, most often noticeable by their absence. An alcoholic with a fracture of the base remains unconscious, his reflexes are absent, his blood pressure low. In other words, he does not react normally. It is my experience that soon after injury the classic signs of compression are often absent, and the diagnosis must be made by inference. Here the changes are especially important. Choked disc should be, and is, a most reliable sign, but does not appear at once, and most of us do not use an ophthalmoscope well enough to detect it in its early stages.

The evidence of hemorrhage is obtained from many sides. There is a probability of cortical laceration and pial hemorrhage in all bursting fractures. Therefore, an unconscious patient, with bleeding from one or both ears, is likely to be bleeding internally. Bloody fluid on lumbar puncture confirms a guess at an intradural hemorrhage. Clear fluid on lumbar puncture leaves open the question of extradural bleeding which must be settled by the more or less classic signs of this lesion.

INDICATIONS FOR TREATMENT.

The treatment of head injuries, whether operative or not, has for its first object the saving of life, and for its second, the prevention of unnecessary damage to the brain—damage which may show itself in the retardation of convalescence and in permanent cerebral defects. In order to attain these objects, we must distinguish between the cases which require no treatment beyond observation and rest in bed for a limited time, the cases which are benefited by operation, and finally those which cannot conceivably be benefited at all.

In the more severe bursting fractures and crushes the patient either dies at once or lives on for a time with a hopelessly damaged brain. In such cases the brain apparently fails to re-

act, there is little compression to relieve and no accessible hemorrhage to drain. The patient may live several days, and die with rapidly rising temperature, rapid pulse, shallow rapid respiration and low blood pressure. The signs of laceration and medullary disturbance are present, and the cerebrospinal fluid is markedly bloody. I have carefully watched a number of such cases, operated upon, or not, and though I can say that drainage and decompression seemed to improve the pulse and respiration temporarily, the course of the patient's dissolution was hardly interrupted. In one case I tried cold bathing to keep down the temperature without being able to affect it in the slightest, which shows how fundamentally the brain is disturbed.

Among the cases merging on the one side into this hopeless class, and on the other into the obviously simple mild injuries, is the field for operative treatment. The principle of operation is simply decompression, accompanied, if necessary, by drainage. This principle was strikingly demonstrated to me by Dr. Harvey Cushing some years ago, and has formed the basis of my subsequent work. We operate, then, to save life by relieving pressure, checking and draining hemorrhage; and we attempt to insure restoration to normal by allowing the brain room to expand when swollen, even if the amount of damage would not necessarily have been fatal. It is very hard to say how often surgery actually *saves* life—seldom I believe in such a field as this—but in my experience, it profoundly alters the convalescence. No one can see the improvement in pulse and respiration which immediately follows decompression in swollen bloody brains without being tremendously impressed, and no one can observe the rapidity of convalescence and completeness of recovery, even in the severer injuries, without astonishment. I have as yet had too little experience to speak with any authority of the results in preventing the onset of the abnormal post-traumatic disturbed mental conditions which are occasionally seen, especially by the alienists. I believe, however, that operative measures tend to do away with them.

In the milder concussion cases surgery is hardly necessary. There is no doubt in my mind that giving the brain more room under conditions in which it is swollen is always of benefit, but when a week's rest in bed will accomplish the same thing, an operation with its resulting cranial defect is generally unjustifiable. Given a patient who is "knocked out" by a blow for even a few minutes, who ignores the injury, has nausea and headache for a number of days, but perhaps does not complain of them, who goes about his business and at the end of several weeks finds himself disturbed, unable to work, restless and miserable; such a patient would probably have been restored to normal by relieving pressure in the first place. On the other hand, he would probably have recovered only a little more slowly under complete rest. In other words, the milder cases should be carefully observed until the headache, increased blood pressure and exaggerated reflexes disappear. It must also be borne in mind that the younger the patient, the more rapid and complete is the recovery, and the less radical the treatment.

I may make myself more clear in regard to the principles of treatment of injury to the head if I describe the steps which I find most useful in going over a patient.

In the first place get the best history you can of the accident, if there was one, especially as to the kind of blow the patient received—whether he fell on the back of his head, or was struck on the side, etc. If there is any doubt of a blow or fall make sure the patient is not in coma from diabetes, uremia or alcohol. Find out whether there have been any changes in consciousness since the injury and if so, what.

It is important to notice if the patient appears to be in shock or if he seems to be on the up grade. Study the pulse, respiration rate and temperature. Size up the patient first before going over him in detail. After this preliminary survey do a lumbar puncture to settle the laceration question, look at the eye grounds with an ophthalmoscope and take the blood pressure. By these means you establish the fact and general character of the injury. Then, and this is really less important, go over the patient in detail. Look over the head for bruises, tender spots, hemorrhages from ears or other orifices. Examine the pupils and their reaction. Try to elicit movements of the face by pinching, or pressing on the supraorbital notches. Going down the body pick up the various limbs, see what voluntary or involuntary movements the patient makes. Are the limbs spastic or flaccid? Try the reflexes everywhere: wrist- and elbow-jerks, knee-jerks, Achilles, Babinski and Oppenheim reflexes. In other words, go over the body systematically for signs of general and then local brain damage.

I should lay more stress on the detailed examination if it were not so often misleading. For instance, early after the injury the reflexes are abolished and may remain so even when the brain is considerably compressed. Differences between two sides of the body are often more important but may be deceptive. Hemorrhage from the right ear with increased reflexes of the opposite side of the body suggests a meningeal hemorrhage on the right. The hemorrhage may, however, be on the left—a nice soft cushion compressing the brain against the right side of the skull. A bruise on the corner of one jaw and a facial palsy of the same side suggest an injury to the brain on the side opposite to which the jaw was punched. I operated on one such case and found a hemorrhage on the side I opened—but there was much more hemorrhage on the opposite side—at autopsy.

One the whole, I should place the value of the

signs which localize the injury on one side of the brain or the other rather low, at least as one sees them when the decision as to treatment must be made. And I should place the general evidence of injury and its course, including that obtained by lumbar puncture, very high. At the present time I have almost made a rule as follows: If the patient, when seen from six to twenty-four hours after injury, shows a slow pulse, rapid and irregular or shallow respiration, low blood pressure, a temperature of 103 degrees, or over, bright bloody fluid on lumbar puncture and deep unconsciousness, I am not inclined to operate because I feel that I shall gain nothing. Up to this condition I operate on every case at once, provided it demands any surgery. I think that it is right to watch any case through its early abasement and possibly deceptive recovery if I am prepared to operate at any minute. That is to say, I should carefully observe most cases seen in the first few hours, but if the patient does not soon improve, or becomes worse, I operate at once. In a case of doubtful progress I should feel happier to have operated than to have let it drag along for days fluctuating between better and worse.

The selection of the field of operation is a simple matter. As far as I have gone into the subject I only know of one condition of which the symptoms ought definitely to lead the surgeon to one side or the other of the head. This is the typical extradural hemorrhage in which he would confidently expect to find the bleeding immediately inside the skull and opposite to the paralyzed side of the face and body. In other cases there are no *reliable* guides. Personally I take any lead I can get, such as a bruise on one temple or the other, bleeding from one ear, tenderness over one temporal bone or paralysis of one side of the body. I do not, however, expect always to go to the seat of gravest local disturbance. All I expect to do is to give the brain more room, and for this, perhaps, the question of right or left is a small matter. If in doubt, I operate on the right to avoid possible damage to the speech areas, but I am prepared to open both sides if necessary.

For all the purposes for which a decompressive operation is done the temporal region is the ideal site. For through this region most of the fractures run. Here middle meningeal hemorrhage is to be found and stopped. Here the skull is thin and easy to open. Here is the strong temporal muscle to cover the defect in the bone and finally, and most important, here is a reasonably "silent" area of the brain to bulge into the opening. All that can reasonably be expected of any operation for fracture of the base can be done beneath the temporal muscle.

The operation which I practice is the subtemporal opening of Cushing. The steps are somewhat as follows: The head is shaved over an area sufficient to uncover the temporal muscle, with a margin of say an inch. It is scrubbed as usual. To exclude hair from the field it is well to pin towels to the scalp in such a way as to expose only a narrow slit extending upwards and a little backwards from just in front of the ear for three to four inches. The incision is straight, and the temporal artery is caught at its lower end. Carefully divide the deep fascia and then the temporal muscle in the direction of its fibers. Now you can, with a periosteum elevator, scrape back muscle and periosteum to each side so that the two halves of the muscle can be well retracted.

The bone is opened by a trephine or burr drill, as low as possible where it shelves off rapidly from thick to thin at the level of the upper edge of the squamous bone. With rongeurs, as large an opening is now made beneath the muscle as desired. If there is no hemorrhage outside the dura, and the dura seems tense, make a large opening in the skull. Little bleeding occurs. Whatever comes from bone can be checked with bone wax. If one of the meningeal vessels is torn it may be temporarily stopped with a fragment of gauze or cotton and later caught with a fine stitch.

To open the dura catch it up with a very fine needle and carefully incise it. Then pass in a director and split it in every direction. If much bloody fluid escapes it is a good plan to place a film of rubber tissue inside the dura and around the temporal lobe. If not, the wound may be closed without drainage. As the brain generally bulges out through the opening, this closure is not always easy and must be carefully done. I use strong, fine black silk, after Cushing's method, and close each layer with interrupted stitches —first the muscle—then the fascia covering it (often a difficult matter as the brain may project far)—and finally the deep fascia of the scalp.

This makes a very strong wound requiring very few skin sutures, which may be removed in two to four days. Absolute asepsis is essential. The strongest kind of healing is desirable, for the patient has got to go about with a bone defect the rest of his life.

The convalescence requires no special treatment except the abundant administration of urotropin (I give Gr. 10-20 every four hours unless hemorrhage from the kidneys occurs) which must be given by rectum until the patient can swallow. Usually the covering of the opening is prominent at first and its subsidence is the first sign of returning cerebral adjustment. The patient often requires bromides and occasionally morphia or other strong hypnotics.

I am now going to give you what I am afraid is rather an imperfect account of several cases treated by me, at the Massachusetts General Hospital, during the last eight months. These cases illustrate many of the points in diagnosis which I have attempted to describe.

CASE I. W. G. No. 178,225. An instance of basal fracture with concussion and slight laceration.

The patient was a man of thirty-five years—a steady drinker.

Immediate History. Fifteen minutes before entrance he was struck upon the right side of the head and the right shoulder by the step of a car. He was probably sober at the time. Unconscious for a few minutes. Recovering consciousness when first seen.

General Examination. Conscious. Rather drowsy, but when spoken to is bright and says he "feels better." Some headache. Temperature subnormal. Pulse 80 and of fair quality. Respiration 20. Pinkish fluid on lumbar puncture. Examination of the retinæ shows a rather questionable edema. Under observation for two hours without obvious change.

Special Examination. Hemorrhage from the right ear. Hematoma behind the right ear with tenderness on pressure. Ecchymosis about the right eye. The right pupil larger than the left. All deep reflexes absent. Superficial reflexes present and equal. No muscular weakness.

Diagnosis. Fracture of the base with concussion and slight laceration. Most damage probably on the right.

Operation. Three hours after the accident. Right subtemporal opening. A fracture passes through the temporal fossa and out upon the vault. Some blood wells up outside the dura from the region of the petrous portion of the temporal bone. Upon opening the dura somewhat bloody fluid and a few small clots spurt out. The tremendously edematous temporal lobe bulges through the wound—the fluid fairly bubbles out of the pia. The brain gradually flattens out as the fluid escapes. The middle meningeal artery is torn (probably in rongeuring the bone). The wound drained inside the dura with rubber tissue.

Convalescence. The decompression opening was prominent for several days. There was deafness in both ears, showing that the crack was bilateral. The patient seemed at times to have hallucinations of hearing voices and at such times would become violent. He could not remember the names of people or common objects though he was not otherwise aphasic. At the end of sixteen days he appeared entirely well except for his deafness, and was discharged.

The case illustrates well the edema of concussion and the typical bursting fracture. Recovery would, I believe, have occurred, probably after a considerable period of depression under any treatment. The patient has since been seen in excellent condition, with no defects of memory and with greatly improved hearing.

Case II. S. P. S. No. 180,378. An instance of basal fracture with laceration—complicated by alcoholism.

The patient was a man of thirty-five years—apparently a steady drinker.

Immediate History. Thirty-six hours before entrance he fell, apparently when drunk, from the step of a wagon. He was said to have struck on his head, became unconscious and remained so without especial change until he was brought to the hospital.

General Examination. The patient is unconscious, and can be roused only by pin-pricks and pressure upon the supraorbitals to make aimless movements of all the limbs. Temperature 103 degrees. Pulse 60, irregular in rate and strength. Respiration 20. Blood pressure 150 mm. Lumbar puncture gives bloody cerebro-spinal fluid.

Special Examination. Dried blood in the right ear. No obvious bruises on the head. Dislocation of the outer end of the right clavicle. The patient moves all limbs except the right arm. No asymmetry of the face. Pupils equal and react. Both knee-jerks increased. Babinski present on the left. Superficial reflexes present.

Diagnosis. Fracture of the base, with laceration and compression. Alcoholism. Most of the damage probably on the right.

Operation. Right subtemporal opening. Fracture through the temporal fossa and out upon the vault. No extradural bleeding. Bloody fluid beneath the dura under pressure. Dark venous blood wells up from the temporal fossa in front. Temporal lobe not edematous. Moderate bulging of the brain through the opening. Drainage inside the dura with rubber tissue.

Convalescence. The opening was prominent for ten days to two weeks. The patient was restless and wild through this period. The temperature steadily fell to normal in ten days. The blood pressure gradually fell from 150 mm. to 110 mm. The wound became septic but healed sufficiently well. The mental condition began to improve in two weeks, and at the end of six weeks seemed normal, though the patient was at all times intractable. The convalescence was complicated by an operation for stricture, and the patient was discharged at the end of eight weeks.

This case is evidently on the border line. There must have been considerably more hemorrhage than was drained by operation, and yet one opening gave sufficient relief. I had supposed that a temperature as high as 103 degrees meant a fatal outcome.

Case III. M. S. No. 178,892.

An instance of an extensive basal fracture with severe laceration, little or no compression, but marked medullary involvement.

The patient was a man of forty-six years.

Immediate History. Brought to the hospital with the story that he had just been run into by an electric car. Not conscious since the accident.

General Examination. In response to scratching the soles of the feet the patient makes aimless movements. Temperature 98 degrees. Pulse 60 to 70, irregular in rate and strength. Respiration 35, shallow, with an occasional deep sigh. During one-half hour observation the patient grew steadily worse. Eye grounds normal. Lumbar puncture not done.

Special Examination. Hemorrhage from the left ear and right nostril. Tenderness behind the left ear. A ragged wound in the occipital region. All the deep reflexes absent except the knee-jerks, and these vary from time to time. Suggestion of Babinski on the left. Superficial reflexes present.

Diagnosis. Fracture of the base with laceration and medullary injury. Most of the damage probably on the left.

Operation. Left subtemporal opening. Transverse fracture in the lower temporal region. The lower edge of the bone slightly deeper than the upper. No bleeding outside the dura. Some blood beneath. The surface of the brain is lacerated and

protrudes somewhat. General appearance, pulse and respiration improved by operation. No drainage.

After Operation. The temperature, pulse and respiration remained steady for four hours, and then the temperature rose to 107 degrees in three hours, and the patient died. Rapid pulse. The decompression opening was never under pressure.

Autopsy. The scalp is torn and infiltrated with blood in the occipital region. From this point a fracture passes forward across the entire base and ends in the frontal fossæ. It lies to the left of the median line, passes across the outer part of the left petrous bone, and then makes for the sella turcica. It is branched in several places.

Both the frontal and temporal lobes of the brain are extensively lacerated upon their under surfaces, especially on the right. There is no special evidence of increased tension.

CASE IV. D. J. H. No. 180,711. An instance of severe basal fracture with laceration and medullary involvement. Alcoholism.

The patient was a man of thirty-five years.

Immediate History. Shortly before entrance the patient was said to have fallen off an electric car. He was alcoholic at the time and was brought to the hospital unconscious.

General Examination. Deeply unconscious. Alcoholic breath. Good color. Cheyne-Stokes breathing—average rate forty-five. Pulse full—rate forty-eight. Temperature 94 degrees by rectum. Eye grounds negative. Blood pressure 150 mm. Nearly pure blood on lumbar puncture.

Special Examination. A lacerated wound of the occiput. No bleeding from the ears. Some bleeding from the mouth. The pupils contract and do not react. All the deep reflexes are absent except the knee-jerks, which are faintly present. Later they were not obtainable.

Diagnosis. Fracture of the base, Severe laceration. Considerable medullary depression (compensatory vagus pulse and raised blood pressure).

Course. No operation was performed, at the patient's condition seemed necessarily fatal. He lived thirty-six hours. The temperature rose to 107 degrees and the pulse to 160 in the first twelve hours. The blood pressure fell and death took place with shallow feeble respiration, rapid pulse and gray pallor.

Autopsy. A fracture of the base extended from the region of the wound on the occiput to the right mastoid process. There was a little extradural hemorrhage in the neighborhood of the fracture, and an extensive laceration beneath both frontal and temporal lobes. The left parietal convolutions were somewhat flattened, showing that the brain had been under some pressure. There was an acute focal pneumonia, part of which might have preceded the accident.

In the type of injury described in these last two cases operation seems to be of little avail, and although it was probably indicated in the last one, I do not believe that it would have affected the result. I have thought that perhaps repeated lumbar punctures might be of advantage, or perhaps a number of small openings in the skull, through which rubber tissue wicks might be placed beneath the dura. At present, however, it does not appear that either the relief of pressure or drainage affords any relief to patients with extensive laceration. On the other hand, as operation generally requires no ether and can be done with practically no additional shock to the patient, I should say that it was a proper proceding even in these apparently hopeless cases.

I have already discussed the more curable varieties of injury, and you may be interested to know the results of the treatment carried out very imperfectly at the Massachusetts Hospital during the last eight months. The only specific treatment outside of surgery has been the free use of urotropin, often as much as eighty grains a day.

Of indented fractures not due to bullets there have been two. In one the scalp was torn off, and the skull driven in, without piercing the dura. In the other the left frontal lobe was deeply lacerated. Both were early cases and both recovered.

Of indented fractures from bullets there have been three. In one the wound of entrance, when seen four days after the accident, was septic and the patient died of pneumonia. In the second the patient was not brought to the hospital until two days after the shooting. He already had a frank meningitis and died. In the third the injury was fresh and the fragments of bullet were found in the torn dura. The patient recovered.

Considering these five cases together, three recovered and two died.

Of the fractures of the base, all but one of which appear to have been bursting fractures, there have been eleven. Of these two were not operated on, with one death. Of the other nine five recovered, and four died. Or, out of the eleven cases, six recovered and five died.

I have described a number of typical injuries in detail, and I hesitate to take up any more of your time with histories. I should like to call attention, however, to the number of alcoholics among the patients, and to suggest that with these men the signs of unconsciousness and medullary depression are probably much more marked than among their sober brothers. Therefore, a symptom complex which, in an alcoholic, might mean one grade of injury, probably represents, in a sober man, a much severer grade. At the same time, the sober man's powers of recovery are probably much greater, so that my standard is probably not so far out of the way.

I have tried to give you an idea of what I believe to be the indications for the operative treatment of injuries to the brain and its case, and I have hinted at what results may be expected. There is no magic in opening the skull. Unless there is pressure to be relieved, hemorrhages to be stopped or fluid to be drained off, there is nothing to be gained by operation. In properly selected cases, however, the following results are to be expected:

1. An edematous, swollen brain is given sufficient room so that it is not compressed. In such a case rapid recovery is probable.

2. Blood clot from ruptured meningeal vessels is removed, and hemorrhage is stopped. Here rapid recovery is to be expected.

3. Where concussion and laceration exist together the brain is not only given more room, but blood and cerebrospinal fluid, now no longer properly disposed of, may be drained away. Here recovery is uncertain and slow.

4. Finally, and in general, recovery in all kinds of cases is tremendously hastened, and there is some reason to believe that many of the late neuroses, epilepsy or other mental defects, so greatly dreaded by all, are done away with.

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THE SURGICAL TREATMENT OF INJURIES OF THE SPINAL COLUMN AFFECTING THE CORD.*

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EVEN with the subject limited to the surgical treatment of injuries of the spine affecting the cord, there was imposed upon me no easy task when I was assigned to place briefly before this section the gist of the surgical opinion of the day on this important topic.

Fortunately grave injuries of the spine are relatively uncommon. Unfortunately, for present purposes, the treatment of such injuries has not been confined to a few surgeons but has almost of necessity been in the hands of many, with the result that there has been and probably is no man or group of men who have had sufficient personal experience in this field to speak *ex cathedra*, as it were, on the question of proper treatment. There is the very widest possible divergence of opinion on the subject, one group of men asserting that operation is useless and never to be advised, another, equally honest, urging operation in every case but disagreeing as to when it should be done, and a third regarding some cases as properly operable, others as inoperable. My own experience has been too limited to warrant my drawing general conclusions from it alone. For that reason nothing new or original is to be expected from this paper in which an attempt will be made only to formulate such indications for your conduct in these cases as in my judgment, seems best supported by the surgical sense of the present time.

Injury to the cord may take place with or without perceptible injury to the column. It is certain, however, that but few injuries of the column are unaccompanied by some degree of injury to the cord or to the nerve roots. The signs of the concomitant cord injury are usually apparent immediately but secondary cord symptoms may show themselves in certain cases after the lapse of a considerable time. That the pathologic effect of an injury may vary in extent and severity is evident. It need not be said that the treatment of all spinal injuries is determined and dominated by the presence or absence and by the character of injury to the cord, and for that reason we must review, even though hurriedly, some essential facts as to the structure of that organ and the effect of trauma on it before we can speak intelligently of treatment.

Viewed as a surgical field, the cord begins at the level of the junction of the atlas and occiput and ends at the twelfth dorsal vertebra where the cauda equina begins. Into detailing the gross anatomy of the cord there is no time to enter. You all know of its division into gray and white matter and of the general significance of each. You know, too, that the anterior nerve roots, the motor roots, go out from the anterior horn and that the posterior, the sensory roots, enter the posterior horn. Anterior nerve roots are the axones of ganglionic cells in the anterior horn; these cells are in connection with both the brain and the periphery. In passing out the axone receives its medullary sheath from the white matter of the cord but is not provided with a neurilemma until it reaches the surface of the fissure. There it becomes invested with its neurilemma (sheath of Schwann), and, thus composed of a neurone or axis cylinder, a medullary sheath and a neurilemma continues on to the muscles of the periphery. Posterior nerve roots are made up of efferent axones from the ganglionic cell bodies in the posterior root ganglia, almost all of which are situated within the inter-vertebral-foramina. From these cell bodies axones go to the peripheral sensory corpuscles also. The afferent and the efferent axones with the ganglionic cell bodies in the posterior root ganglion make up the sensory neurone. Both the afferent and efferent axones have a neurilemma except the portion within the spinal cord which is aneurilemmatous.

Under favorable conditions all axones with a neurilemma are capable of functional regeneration. Thus all the spinal nerves are capable of regeneration. The spinal cord, however, the axones of which are without neurilemmata (this is true of both the gray matter and of the columns) is entirely incapable of functional regeneration after division or destruction. The cauda equina, it must be remembered, is not included in this statement. The nerve fibers there have neurilemmata and are capable of regeneration—a fact which has a very practical application.

All the experimental evidence we have at present, if properly interpreted, goes to show that functional regeneration of the cord above the cauda equina has never taken place. To Weissman's dictum "Ganglionic cells once destroyed in the gray matter of the cord are never reproduced or replaced," John B. Murphy adds, "Ganglionic cell bodies and aneurilemmic ax-

* Read at the meeting of The Massachusetts Medical Society, June 11, 1912.

ones are never functionally reproduced." Such clinical or experimental evidence as has been presented in support of the opposite view has not been generally regarded as convincing. Beginning growth of nerve fibers of the peripheral type has been observed in the scar tissue of an injured cord or in the uninjured dura but always of such limited extent as to be of absolutely no functional value. Improvement after suture of a severed cord has been reported in several instances but it is generally believed that in these cases there must have been some undiscovered, uninjured fibers of the cord or of nerve structures in portions of the dura remaining intact. In compression of the cord, for instance, many of the nerve fibers may lose their medullary sheath, the naked axis cylinders remaining still capable of function. In this way, Spiller asserts, much restoration of function takes place. Restoration of function, however, does not necessarily mean regeneration nor does the attainment of perfect mechanical union of cord segments mean functional union. Some rough anatomical regeneration may take place after suture of the cord but never a functional repair.

In a cord injury the lesion may vary from the slightest to the most severe, from a mere zonal edema to total transverse destruction of a segment or segments. Secondary degeneration follows the more severe cord injuries. It is important to bear in mind that such degeneration is an *effect* of a cord injury and not the cause of compression symptoms. Of itself it probably causes no symptoms. (Spiller.) If the nerve fibers are severely injured, degeneration occurs whether compression is immediately removed or not, whether immediate suture is done or not. Removal of pressure will not cause already destroyed or degenerated fibers to regenerate.

All these above-mentioned facts are fundamental and have a practical bearing on the question of the treatment of injury of the cord, the various types of which we are now to consider. As good a history as possible of the accident should always be obtained. It may throw important light on the kind and on the degree of severity of the resulting injury.

CONCUSSION OF THE CORD; CONTUSION OF THE CORD; HEMORRHAGE.

Concussion of the Cord. The term "spinal concussion is not recognized by all surgeons. It is true that it does not represent a morbid entity but the term is used to designate a condition in which the function of the spinal cord is impaired or interrupted by any injury which does not produce gross anatomic changes. The question of its existence or nonexistence is of academic interest only. It is evident that it has no distinguishing symptoms and hence is of no clinical interest.

Contusion of the Cord. True contusion of the spinal cord is well recognized. The cord is one of the best protected structures in the body and, as a rule, great violence is necessary to do it injury without fracture or dislocation of the vertebral column. It is known, however, that direct violence applied to the vertebral column, as, for instance, by a fall on the back, may give rise to contusion of the cord by causing it to be thrown forward and backward with greater or less violence within the canal—the so-called "indirect contusion" of the French. Either the white or the gray matter or both may be affected and the resulting lesion may vary from a slight and transient-one to a severe and partially permanent one. There may be a limited traumatic zonal inflammation of the cord, a separation of the fibers by blood or exudate forcing them apart with a temporary suspension of their function but without the destruction of the axones. On the other hand, there may be destruction of some of the fibers of the cord.

The cord may also be contused by the direct, immediate trauma of displaced bone (spinal arch or body)—the "direct contusion" of the French. Here, as in the indirect form, the extent and the degree of the resultant injury may vary but it is apparent that the direct variety is much more apt to do the greater damage.

Hemorrhage. Hemorrhage within the canal (hematorrachis) or cord may exist of itself or in conjunction with contusion or other injuries. It may be extradural, intradural, or intramedullary (hematomyelia).

Extradural and intradural hemorrhages are usually of themselves not of great moment. Occasionally the effusion of blood is of sufficient amount to produce per se symptoms of pressure which come on gradually and progressively and, as a rule, disappear in from four to six weeks. The extradural is the more frequent form. The intradural may be diagnosed and occasionally even relieved by a lumbar puncture. The symptoms of both are usually transient; neither form is often of such amount as to cause of itself important symptoms. When intraspinal hemorrhage (hematorrachis) is severe, it is usually the accompaniment of much more important and graver spinal cord injury and its treatment is involved in that of the more serious trouble.

Hematomyelia. This may be central or scattered. The latter form is entirely impossible of diagnosis and is of no clinical importance. The central or usual form is almost always seen in the region of the fourth, fifth and sixth cervical vertebrae (occasionally in the upper dorsal region) and in traumatic cases is due to overflexion of the spine. (Thorburn.) The gray matter of the cord is softer, of looser structure and less resistant than the surrounding white matter and, though better protected, is really more susceptible to injury. The result of hemorrhage into it is the permanent destruction of a certain number of nerve cells and a varying degree of transient pressure on the structures in the white matter. The blood clot and destroyed cells are

gradually absorbed but a cavity is left in the gray matter and, hence, even in cases of recovery, there is always some weakness remaining.

I believe that the occurrence of contusions of the cord and of the intraspinal hemorrhages as sole entities is rather uncommon. That they may occur as such, however, has been clinically proven. Thus regarded, what are the indications for their treatment? In neither kind of hemorrhage is there any indication for operative interference other than the presence of the signs of gradually increasing intraspinal pressure. Given those signs in extradural hemorrhage laminectomy should be done for the purpose of stopping the flow of blood or of giving exit to it and in that way relieving pressure. If a period of noninterference with respiration is followed by respiratory embarrassment, then the indications for interference are plain (Fowler), though to my mind the outcome in such an event even with operation is practically hopeless. In subdural hemorrhage with symptoms of increasing pressure lumbar puncture is indicated and, if it does not relieve, laminectomy should be done.

In hematomyelia operation cannot be of avail. The damage to the gray matter is instanteously destructive and such pressure as exists in the white matter in the tracts will be relieved by the absorption of the central clot. Fowler advises early operation in all cases of hematomyelia but the reason for this advice is by no means apparent.

Operative interference is not indicated in cases of simple contusion of the cord. To these cases time will bring all possible recovery. Immediate and even early diagnosis in these cases of uncomplicated contusion and of hemorrhage (in or upon the cord) is manifestly difficult. Hematomyelia gives, perhaps, the most marked clinical syndrome but even there operation is not indicated. These conditions are usually seen as concomitants or complications of the more severe spinal injuries—the fracture dislocations. It is this type of injury that the surgeon usually has to face and consequently it is just here that he wants to know what course to follow. Will he operate or will he employ less radical measures?

For the most part surgeons are agreed that in complete transverse lesions of the cord operation is contraindicated, for reasons previously mentioned in this paper. The contention of those advising operation in all cases of severe spinal injury has been that one cannot tell from clinical signs and symptoms alone just what has happened to the cord. Cases that have given every accepted sign of complete division of the cord have on operation shown no totally destructive cord lesion or else some direct mechanical pressure that could be relieved. In other words, we can be certain of the exact nature of the injury only through laminectomy which in itself is said to be easy of accomplishment and harmless. With this phase of the question I shall deal later.

Now, if there are signs and symptoms that will indicate for a certainty whether a cord injury is complete or partial, in our recognition of them lies the means for deciding for or against operation in a given case. What are the generally accepted signs first of a completely destructive and then of a partially destructive cord lesion?

Signs of a Complete Cord Lesion. Complete motor paralysis of those parts of the body supplied by nerves leaving the cord below the level of the cord lesion; complete loss of muscular tone—a flaccid paralysis; complete and parallel vasomotor paralysis (increased surface, warmth, marked sweating, anemia of viscera, priapism, etc.); absolute loss of the deep tendon reflexes (the plantar, perhaps, excepted); a corresponding area of complete absence of sensation of all kinds with a sharply defined upward segmental level; absolute loss of all form of motor and sensory nerve irritability over these areas; absence of pain; absence of variation in the symptoms.

Signs of a Partial Cord Lesion. The motor paralysis is not absolute; it may be slight or almost complete; it may affect an isolated group or whole groups of muscles; the quality of the paralysis may vary from complete spasmodic paralysis to flaccid paralysis, the paralysis of the bladder and rectum may be incomplete or even entirely absent; the vasomotor paralysis may not parallel the other forms; the sensory paralysis may not be absolute and it may not parallel the motor paralysis; some forms of sensibility (pain, for instance) may be absent while others (heat, contact) may be present; evidences of sensitive irritability (hyperesthesia, darting pains, formication, etc.) may be seen; the reflexes, still present, may be intact, diminished, or even exaggerated. Early improvement is usually seen.

It would seem from the two paragraphs immediately above that the diagnosis between the two forms should be a relatively easy matter. Experience, however, has shown that the diagnostic line is not an absolute one. Definite absence of the deep reflexes (the Bastian-Bruns law) has been the one most striking feature of total lesions and it may safely be said that in practically all cases its worth is absolute. Kocher, whose experience and judgment cannot be questioned, said in 1909 that he had never been deceived in this sign. However, while the presence of these reflexes makes the absence of a total lesion certain, their absence cannot be always and in every case regarded as absolute proof of a total lesion unless that absence is permanent. A temporary (even up to eight days) loss of these reflexes has been observed in numerous cases of partial lesion.

With this in mind Sencert and Auvray, of Nancy, with their colleagues in physiology and histology undertook some experimental work

with the hope of defining still more certainly the diagnostic line between partial and total lesions. Their results were reported to the French Congress of Surgeons in 1909. What they added to our knowledge of the subject may be summed up about as follows: In a total cord lesion both the excitability and the conductivity of the nerves originating below the level of the injury are abolished and their absence is indicated by the *early* appearance of the reaction of degeneration of the nerves; in partial lesions, on the other hand, only the conductivity is interfered with, the excitability being little if at all disturbed, as is shown by the nonappearance of the reaction of degeneration. Such opportunities, as the authors had of applying the results of the experimental work to clinical material, proved its value. The disadvantage of the test lies in the fact that only in the hands of a trained neurologist would it be of value. The average surgeon would have neither the instruments nor the skill requisite for making the tests.

But even without the aid of these last mentioned signs one may assume, with a fair degree of certainty, the presence of a transverse lesion of the cord when there is a complete immediate annular paralysis of both motion and sensation below the line of fracture and when, at the same time, the deep reflexes are abolished.

If a transverse lesion puts a case out of the realm of our present-day surgery, our consideration must be turned to the treatment of cases of partial lesions of the cord.

In this connection it is worth while to digress momentarily and to view some recent experimental work by Allen. In cases of cessation of function of the cord in which the latter has not been literally severed we must assume that either there is destruction of the axis cylinders (in the restoration of which we can in no way aid) or else "there is a serous or hemorrhagic outpouring into the cord tissues which, by its pressure and chemical activity, inhibits temporarily all conduction function or destroys permanently the spinal cord." Now, in these second conditions Allen believes there may be a chance of affording relief. After artificially producing injury to the spinal cord of a dog sufficiently severe to give all symptoms of a transverse lesion he has done a laminectomy on the animal under ether and made median longitudinal incisions with a fine knife through the injured areas, thus instituting spinal cord drainage, a sort of spinal cord decompression. Allen's results in these cases, compared with those in a control series in which the median longitudinal incisions were not made, were quite wonderful, since a complete restoration of motor power was obtained. The median longitudinal incision caused no symptoms worthy of note. Allen is not yet ready to apply this procedure to man but his *tentative* conclusions, which I quote, are most interesting. "In cases of fracture dislocation of the spinal column in the human subject in which there exists the symptom picture of transverse lesion of the spinal cord, it were well to perform the operation of laminectomy at the earliest possible moment and, if the cord be not completely severed, to make a median longitudinal incision through the area of impact by means of a fine canaliculus knife in order to drain the injured tissue of the products of edema and hemorrhage."

I believe there is not yet sufficient reason for indicating this as a routine measure in injuries of the spinal cord in human beings. But Allen's work is most promising and it may open a wide field for useful operative work in the treatment of conditions which up to the present have responded unsatisfactorily to our efforts for their relief.

Clinically, partial lesion of the cord may be separated into two divisions: 1. Cases in which the diagnosis of partial lesion is certain. 2. Cases in which there is doubt as to whether the lesion is partial or total.

1. *Cases in which the Diagnosis of Partial Lesion is Certain.* If our eyes and our fingers fail to find a deformity of the vertebral column and if the radiographic examination confirms us in this finding, then it is fair to assume that the cord lesion is due to a contusion, to a hematomyelia or to a hematorrachis. A clinical distinction between them is usually difficult and often impossible. Surgical intervention is not indicated. Nature will cure more or less completely. As far as our present knowledge serves us, operation will not aid. In exceptional instances, after a progressive improvement in a case, betterment may cease or even retrogression begin (due to organizing blood clot, to adhesions or to incomplete resorption of the hematoma); then a secondary operation may be considered. It is to be considered also in cases which show no spontaneous improvement.

If a spinal deformity is found either on routine examination or through the use of the x-ray, active treatment should be instituted promptly. Active treatment is not always synonymous with operative treatment. In unilateral or bilateral luxation of a cervical vertebra manual reduction* should be tried and, that failing, careful traction and extension under an anesthetic; if these measures are unavailing and symptoms of pressure continue, laminectomy is indicated.

In isolated, displaced and depressed fractures of the spinal arches with pressure symptoms, laminectomy should always be done and done promptly.

In fracture of the vertebral bodies operation should not be our first consideration. One should first try the effect of position (rest on a firm bed with proper supports beneath the injured point, etc.), of traction with or without counter-extension, of "gravity reduction," etc. If under such treatment the motor or sensory paralysis remains stationary or increases, then

* Note Dr. Walton's comment in the discussion of the article.

either the deformity of the fracture has not been reduced or an exuberant callus is pressing on the cord. Laminectomy is the only means of relief.

In fractures in the mid-cervical region, where there is danger of pressure on the fourth cervical segment, immediate operation is indicated.

In fracture dislocations with symptoms pointing to a partial medullary lesion immediate operation should be the rule. I believe that it is less dangerous than attempts at bloodless reduction and that it will prove effectual in more cases.

2. *Cases in which there is Doubt as to whether the Lesion is Total or Partial.* In these cases wait, as a rule. If by reason of the high situation of a deformity, life is directly and immediately threatened, operation should be done in the hope of warding off the immediately impending danger.

In other cases treat the patient tentatively and try in every way to distinguish between a total and a partial lesion. If in from four to five days the existence of a partial lesion is fairly certain, operation is to be considered. Kocher sees no reason for immediate hurry and believes that late operation may be done with benefit to the patient even if pressure has continued for a long time. If, on the other hand, a transverse lesion is indicated, do not operate.

From our present knowledge it is probable that if in the future operation is done in complete transverse lesions of the cord, it will be undertaken only with the idea of making a possible anastomosis of nerve roots above and below the lesion. We do not as yet know just how much can be accomplished by such operations nor to just what fields they may be applied.

In lesions of the cauda equina, no matter how great the degree of severity, laminectomy should be done and suture of the severed cords attempted. Here we may hope for good results since the fibers in the cauda equina have neurilemmata and consequently complete regeneration is possible.

A general word about injuries to the spinal column may not be amiss here. Because a patient with injury to the column shows no immediate sign of cord injury, it is not to be assumed that symptoms and even crippling symptoms of pressure on the cord or nerve roots may not appear later. It is our duty to examine with care each case of back injury, to insist that a radiographic examination be made and to see to it that suitable treatment be instituted and continued. The x-ray has shown many unexpected bone lesions in these cases.

I shall not go into detail as to the technic of operations on the spinal canal and cord. In traumatic surgery a simple laminectomy is to be preferred to the various osteoplastic operations. Bear in mind the tendency to place the lesion lower than it really is and the consequent danger of operating at too low a level. The dura should always be opened. One often sees the statement that laminectomy is a harmless operation; furthermore, those who advise operative interference as a rule in spinal cord injuries quote this assertion in support of their contention. I am not sure that the assertion states the fact. Kocher and Harvey Cushing, both masters in neurologic surgery, consider laminectomy anything but a harmless operation and are most conservative in advising its use. Spiller has seen harm result from it. Surely in most cases it must add insult to an already damaged cord. Do not regard the operation as innocuous or as one often indicated as an exploratory measure. If there are indications for undertaking it, let it be done with all possible gentleness and with special attention to hemostasis. The baneful effect of hemorrhage on the tissues of the cord and of other nerve structures is well recognized and must be borne in mind.

It is only fair to note here that both Heidenhain and Robertson have done laminectomy under purely local anesthesia.

The greatest care in handling the unfortunate victims of cord injuries must be exercised both before and after operation. If transportation or moving is necessary it should be conducted with every precaution. After a laminectomy immobilization of the spine is necessary. Sudden deaths have resulted from failure to provide it. Cotton and Blanchard believe that "in all cases in which laminectomy seems inadvisable and in a large part of the cases in which it has been done, we should place thick heavy pads at either side of the spine *below* the break. Gravity is thus made use of in the production and maintenance of proper position.

Two important factors in the after care of injuries to the spinal cord are the prevention of bed sores, if possible, and the avoidance of infection of the bladder. It will require nursing of the most careful kind to prevent bed sores; sometimes prevention is impossible. It is only rarely that the treatment and long continued catheterization of the bladder will not result in a serious and often fatal cystitis. Cushing has gone so far as to advise immediate suprapubic cystotomy in cases of severe injury to the cord. In his experience such a procedure increases the comfort of the patient and lessens very much the danger of renal infection. The choice, however, cannot be called comforting.

I am quite aware that my views will probably not be in agreement with those of many present. I know, too, that cases may, and will be, quoted in which great improvement has followed laminectomy in apparently hopeless cases of spinal cord injury. On the other hand, we have all seen really remarkable recoveries in unoperated cases and some unfortunate and many indifferent results in cases upon which operation has been done. It may and has been claimed that a certain knowledge of intraspinal conditions can be had only through an open operation and yet

Spiller tells us that a cord exposed at operation may appear to have escaped injury and still have such internal changes as to be absolutely and hopelessly functionless. Whether to operate or not is often a puzzling question and many circumstances come into consideration in making a decision. De Quervain, who reported a most careful study of 218 operative cases collected from surgeons the world over, puts so well and with so good reason the average opinion (so to speak) of present day surgery that I shall quote in part his conclusions.

"Neither extradural hemorrhage nor intradural hematoma provide, as a general rule, operative indications unless compression of the mid part of the cervical cord by a hematoma without concomitant contusion of the chord (a diagnosis difficult to make) imperils the life of the patient through progressive respiratory trouble. Late operation is indicated by incomplete resorption of the hematoma.

"Operation must be prescribed in cases where the symptoms speak in favor of hematomyelia.

"Early operation is indicated when the nervous troubles con be attributed after clinical examination to the fracture of an arch.

"An early intervention may be useful, without presenting, however, much chance of success, when in a dislocated fracture attempts at bloodless reduction have failed and the patient shows symptoms of a partial lesion (favorable results in cases of compression between body and arch but quite useless in cases of contusion).

"Late intervention is indicated if in the prementioned cases early intervention has not taken place and the nerve symptoms have not improved spontaneously or if an ulterior aggravation of the symptoms should happen in a case of partial lesion (compression by a callus, especially in cases of fracture by compression)."

In surgery of the brain and cord we face a situation beset with difficulties and bound to be accompanied by disappointment. We have to do with tissues highly specialized, highly organized and practically incapable of regeneration, with tissues which control the most important bodily functions. In the surgery of other structures (as, for instance, the intraabdominal organs) many of our unintentional errors, unfortunately necessary in accomplishing advance in any surgical field, may be later fully or partially corrected; in this field, however, an error made or damage done is irreparable; hence our progress should be slow and careful. The outlook for great advance, I think, it not any too promising and I say this not because I impute any lack of skill or want of willingness to the profession, but because I believe that the innate difficulties presented by the nature and composition of the structures in question are insurmountable.

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Original Articles.

A NEW DEVICE FOR THE SAFE AND CERTAIN ADMINISTRATION OF SALVARSAN.

BY WILLIAM J. McGURN, M.D., BOSTON.

IT is now more than two years since salvarsan, or "606," began to play an active part in the treatment of specific disease in this country. But to date no one instrument has been devised that is without danger to the patient, nor one that has met with the approval of all those who have taken upon themselves the responsibility of treating syphilis by the intravenous injection of salvarsan.

Before entering into a description of the apparatus devised by me, I feel it my duty to mention some of the dangers of the other methods, as they have presented themselves to me. During my earliest experience with salvarsan it became apparent to me that each of the methods was open to some very grave dangers. The best defence that the exponents of either method makes is, that they have given salvarsan in several hundred cases without a death from the dangers pointed out by me, but none have attempted to deny that such dangers do exist; in fact, the bulwark of defence made by patrons of either method is that their method admits of fewer dangers than that of the others.

First I will attempt to detail some of the dangers observed by me in the employment of the gravity method, confining myself to complications that I have seen arise and with which I have had personal experience. Let us assume that we are using a cannula with an open vein ligated beyond the point of entrance of the cannula; that we have established the free flow of NaCl solution, and have begun the pouring of the salvarsan. Gradually the onward flow of the solution becomes slower and slower, and finally ceases. What are we to do next? We are told by our seniors to sit down and wait, have patience, and perhaps the "spasm of vein" will relax and the remainder of the solution will flow in; but remember that we have still one-half of our salvarsan in the funnel, some in the vein and cannula, which is to be carried along and flushed out by 200 to 300 c.c. of salt solution. If the "spasm of vein" is relaxed in fifteen minutes or one-half hour, as we hope it may be, it is at best a long drawn out affair, the solution becomes cold by rapid radiation from the tubing, and the patient becomes tired and uneasy.

And now a word about the "spasm of vein." I have no doubt that such a condition may and often does occur, but the factor that I have most frequently met with that causes the solution to stop flowing is a clot in the cannula and tubing, caused by a regurgitation of blood from the vein. Whatever the cause may be, we have no means of determining it until we withdraw the needle or cannula, which, of course, is not a desirable part of the procedure.

And now let us go back to the venous stasis, the half-filled funnel and spasmodic vein. Here let us picture that condition often encountered, in which there is a hopeless stasis of the salvarsan. We are forced to withdraw the cannula, tie off the vein, which is filled with salvarsan solution, and proceed to open another vein with the hope of better results. Meanwhile we are conscious of the fact that we have left behind a vein filled with a strong solution capable of producing a violent phlebitis with suppuration, also a wound more or less infiltrated with a solution powerful enough to produce extensive necrosis of the tissues involved; and furthermore, let us be alarmed, but not surprised, upon withdrawing the cannula, if we find a blood clot ¼ to 1½ inches long which completely occluded its lumen. The result that might obtain in case the "spasm of vein" had relaxed and the clot carried forward, is obvious. I have no doubt that such a clot has often been carried forward into the general circulation and has in some way been taken care of by the blood stream, but this is something that cannot be relied upon and is always to be considered a source of very great danger whenever the simple gravity method is employed.

I learn from other men, who have employed this method in several hundred cases, that they have so far never known of a clot having formed in their needle or cannula. It was my experience to meet with just such a clot in four successive cases. The fact that this method has been employed in one, two, or three hundred cases without a death is not proof sufficient that we are not about to face disaster with our next case, and I believe the time has arrived when the dangers of the simple gravity method are apparent and that it should be abandoned for safer and more certain methods.

I will now cite the objections that I found to the employment of the Schreiber method. First of all, it requires a large ground-glass syringe, which is expensive and of course very easily broken. Again, this method requires the services of an assistant who is quite as careful and expert as the operator himself. Another objection is that owing to the unequal pressure exerted upon the piston by the assistant, it interferes with the introduction of the needle or cannula into the vein while the NaCl solution is flowing.

Still another serious and unavoidable objection is that two open receptacles are used, one for the 300 c.c. of salvarsan and another for the NaCl solution. These, if of small caliber, are high and unstable affairs, or, if shallow and of much larger diameter act also as open receptacles for dust and foreign matter of any kind. And since these receptacles are of necessity placed upon a table or shelf, at or about the level of the patient's body, may we not assume that there is great danger of detritus of some sort falling from the hair or surface of the assistant's or operator's gown while working directly over these open receptacles? We of course allow that these gowns are sterile, but sterilization becomes *nil* unless we provide against contamination from all other physical and chemical extraneous matter, such as particles of dust, groups of bacteria floating in the air, etc., for we are not always provided with rooms that have air filters and air sterilizers. Nor is it uncommon for small particles of calcium and other ceiling coverings to gravitate and land in any receptacle that may be open.

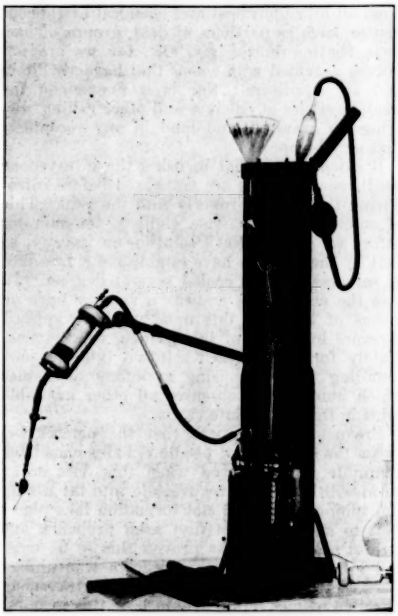
It often occurs that in using the intravenous needle several veins are transfixed before introducing the needle properly into the vein. This of course consumes from eight to ten minutes before we get the NaCl solution on its way, so that by the time we have established a free flow of salvarsan it has cooled several degrees. In case the needle does transfix a vein we have no means of knowing this until we have applied pressure by means of the syringe, which immediately forces the NaCl solution into the surrounding tissues, causing a puffing of tissues which immediately obscures all other available veins in that immediate region.

Frequently it happens that the petcock between the syringe and needle remains closed for a minute or more, and when this does occur blood will invariably regurgitate into the needle and tubing, and rapid clot formation take place. This to me did not at first seem probable, but careful observation has proven this to be true, and I believe that every physician who undertakes the use of any instrument for intravenous injection of any liquid should bear this in mind and avoid if possible the closing of a petcock that will impede the onward flow of his solution for a period longer than ten or fifteen seconds. In watching other men of wide experience with this method, I have seen a firm clot of blood form in their needle sufficiently large to completely occlude its lumen, and one that required considerable pressure on the piston to expel, even while the operator, in trying to enter a vein, had accidentally transfixed it.

This danger is greatly increased and the blood clots form with much greater rapidity when a needle is employed that has previously been used, for such a needle often acts as housing for products of oxidization that are capable of causing instantaneous blood coagulation. Where a needle is used and connected to the syringe, after it has been introduced into the vein the operator is taking blood from the vein, exposing it to the air, and again forcing it into the general circulation. And since the beginning of clot

formation is simultaneous with its exposure to air and greatly hastened by its contact with a needle, I question the safety of this procedure.

Previously it was my custom following each operation to take a reading glass and examine my filter for any detritus that may have gravitated upon it during the half hour or less that it guards the funnel, and never have I failed to find particles of carbon or detritus of some sort that could readily be seen with the naked eye. I use a room that is opened for practically no



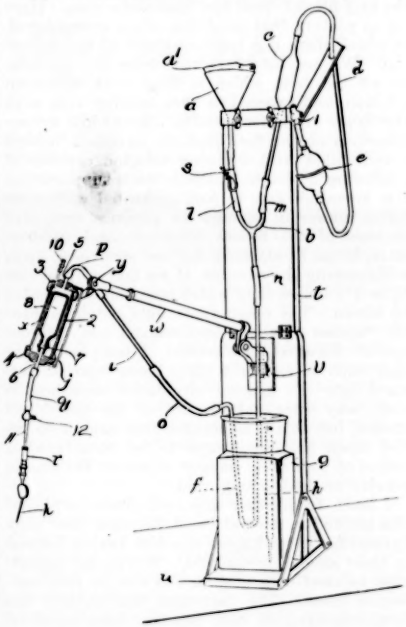
other purpose than the giving of salvarsan, and no sweeping or dusting is ever allowed. The floors are washed the day before and steam is set free from a steam sterilizer for one hour before the operation, so that the air is likely to be as pure as we should expect to find it in the average hospital.

We are all aware that millions of minute bodies are suspended in the air of all occupied rooms. The probability that these bodies are capable of acting as carriers of micro-organisms and retainers of a sufficient amount of salvarsan to cause destruction of delicate tissues wherever they may become lodged in the human organism, cannot well be disregarded, even though they are not large enough to actually occlude a blood vessel.

In summing up I will say that it is my opinion that at least some of the deaths reported from cerebral hemorrhage following the use of salvarsan have been due to blood clots formed in the needle and cannula as I have described, and to foreign matter that has gravitated into open receptacles.

There are other objections to the methods described, but I will not enumerate them, for I do not wish to leave the impression with anyone that these methods are *all* wrong, for if no better method could be found I would say by all means continue with those in use at the present time.

The instrument that I have devised is intended



d—Fine linen filter or screen.
a—Funnel or open receptacle.
s—Metal clip or shut-off.
l—Short rubber tube connection.
10—Valve to release air from filter chamber.
5—Inlet tube to filter chamber.
3—Soft rubber cap closing filter chamber.
8—Porcelain filter.
x—Glass wall of filter chamber.
4—Soft rubber seat closing filter chamber.
6—Outlet tube from filter.
q—Short rubber tube connection.
12—Non-corrosive metal petcock.
r—Short rubber tube connection.
k—Needle or cannula.
u—Base or footpiece of frame.
c—Glass bulb.
d—Rubber tube.
1—One-way petcock.
e—Rubber bulb.
m—Short rubber tube connection.
b—Y-shaped glass tube.
n—Short rubber tube connection.
t—Collapsible rack or frame to support device.
i—Glass by-pass or tube.
v—Support for extension bracket.
o—Long flexible rubber tube connection.
f—U-shaped glass tube for warming solution.
g—Glass jar to warm U-tube.
h—Thermometer.
7—Pure gum rubber connection between filter and its outlet.
2—Metal support for filter.

to simplify and render safe and certain the intravenous administration of any liquid, especially salvarsan and its derivative. It combines gravity with compressed air to force the solution into the vein, includes a means for warming the solutions, and finally a porcelain filter capable of removing extraneous matter of any kind, including micro-organisms, immediately before

That the needle or cannula can easily be introduced while the solution is flowing.

That it is a time-saving device.

And finally, that it is the only device that has been presented to the medical profession that will remove all extraneous matter, including micro-organisms, from the solution immediately before it enters the vein.

tion.

That it warms the solution immediately before placing in into the general circulation.

That its operator does not require a skilled assistant.

That it is not subject to easy breakage.

That it is easy to sterilize and keep clean.

That it is of great value in establishing the location of the needle and will not puff up the tissues and obscure the vein when the needle is outside the vein or has transfixed it.

discomfort to himself and with sufficient dexterity to satisfy his employers.

As is seen in the tracings of the hands the four fingers of the right hand are webbed, the thumb alone being free. On the left the thumb and forefinger are free, the other fingers being webbed.

Ill-formed, rudimentary nails were present on both hands, two on the right thumb, three on the left with five nails on the fingers on both.

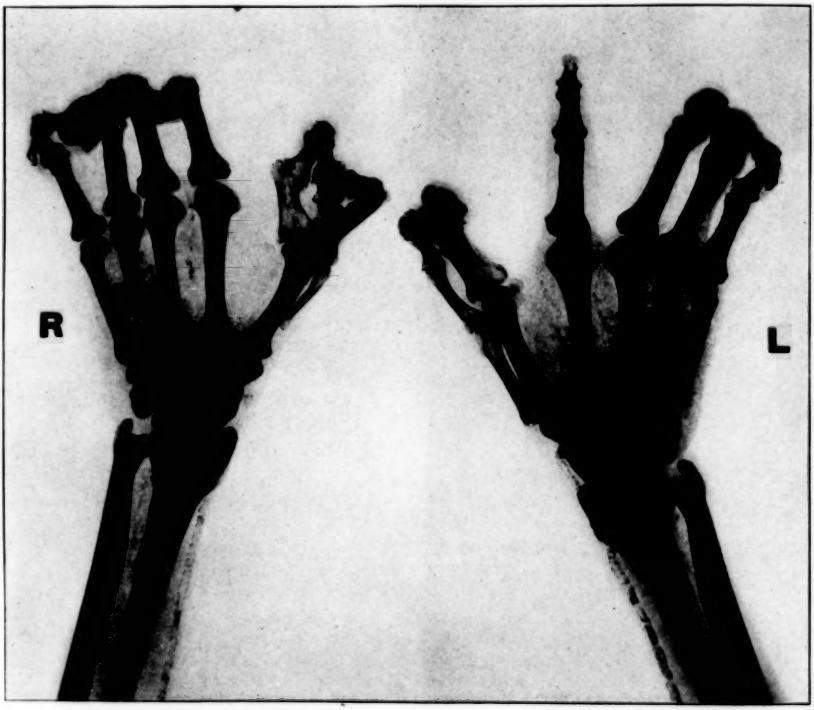
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UNUSUAL ANOMALY OF THE HANDS.—GOODALL.



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to simplify and render safe and certain the intravenous administration of any liquid, especially salvarsan and its derivative. It combines gravity with compressed air to force the solution into the vein, includes a means for warming the solutions, and finally a porcelain filter capable of removing extraneous matter of any kind, including micro-organisms, immediately before forcing the solution into the general circulation. It requires but twelve minutes to administer 600 c.c. of solution.

For a detailed description I will refer the reader to the accompanying drawings. I have included all the virtues of this instrument in a much simpler device, which will appear in the near future, but for a description of the general principles of the device I have chosen the one illustrated.

In using this instrument the NaCl solution is poured into the funnel and allowed to gravitate with the needle or cannula raised until all air below the liquid is expelled. Then the petcock nearest the needle is partly closed so that the solution just barely flows from the point of the needle. This slight flow of NaCl does not interfere with the introduction of the needle through the skin. As soon as the needle is in the vein, the tournaquet is removed and the petcock opened wide. Now by watching the solution in the glass bulb, which has gravitated from the funnel, we have proof positive whether or not the needle is properly into the vein, for if gravity alone lowers the liquid in the bulb we may be assured that our aim was correct and we may at once exert pressure from the bulb and begin pouring the salvarsan. If gravity does not lower the liquid in the bulb, we know that the needle is not in the vein and we may readjust its position, for when the filter is used gravity alone will not cause infiltration of the tissues. It requires no skill to fill and refill the glass bulb and send it along into the vein without even once closing the petcock, which should be used only while introducing the needle and as a safeguard to the patient in case of accident.

The advantages of this instrument are:

That it is impossible for air to reach the vein through the filter, even though the tubing and filter should become filled with air.

That it re-filters the solution just before it enters the blood stream.

That it insures a continuous flow of the solution from the beginning to the end of our operation.

That it warms the solution immediately before placing in into the general circulation.

That its operator does not require a skilled assistant.

That it is not subject to easy breakage.

That it is easy to sterilize and keep clean.

That it is of great value in establishing the location of the needle and will not puff up the tissues and obscure the vein when the needle is outside the vein or has transfixed it.

That the needle or cannula can easily be introduced while the solution is flowing.

That it is a time-saving device.

And finally, that it is the only device that has been presented to the medical profession that will remove all extraneous matter, including micro-organisms, from the solution immediately before it enters the vein.

Before retiring from my discussion of this subject, I wish to say a word of caution regarding the sterilization of such instruments in common water, especially in the summer months when our metropolitan water is loaded with vegetable extraneous matter and millions of bacteria. These, when coagulated by boiling, are likely to cling to the inner surfaces of any instrument, and unless we use a final filter, are carried into the blood stream. Steam sterilization or boiling in distilled water appears to me to be the only safe method of sterilization of any instrument to be used for intravenous work.

We have for examples of intravenous asepsis the normal respiratory and alimentary tracts. In either of these tracts millions of particles of extraneous matter are introduced into their upper parts but as the fluids are passed along nature provides for the removal of all extraneous matter, including micro-organisms, so that when these fluids reach the blood-stream they are free from physical contamination. It is this function of the alimentary and respiratory tracts that I have tried to imitate in introducing my final porcelain filter, the value of which has been proven many times.

In closing I would add that we must not assume that salvarsan has caused a single death until we have eliminated the possibility of millions or dozens of micro-organisms entering the general circulation through faulty technic.

Clinical Department

AN UNUSUAL ANOMALY OF THE HANDS.

BY HARRY W. GOODALL, M.D., BOSTON.

THIS remarkable anomaly of the hands, the skiagraph of which is presented, was observed in the outpatient medical clinic at the Boston Dispensary.

A laboring man, 63 years of age, who has always worked at unskilled laboring occupations, without discomfort to himself and with sufficient dexterity to satisfy his employers.

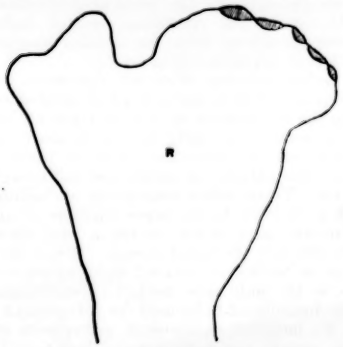
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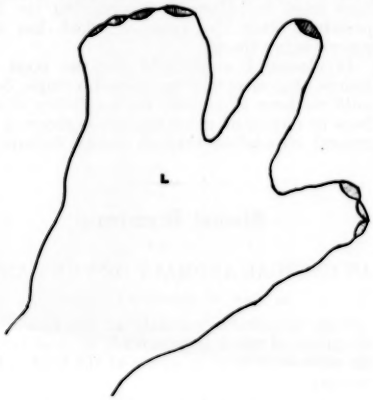
are not remarkable except that the terminal phalanges are deformed and fused together.

The thumbs are quite remarkable in that the right has two metacarpal bones, one showing normal



development, the other rudimentary and not articulating with the trapezium, but arising from the outer surface of the normal metacarpal about a half an inch above its articulation with the trapezium.

Articulating with the well-formed metacarpal are two well-formed first phalangeals, each of which have a well-formed second phalangeal with ill-



formed terminal phalangeals which are fused. The rudimentary metacarpal has a small first phalangeal, the second and terminal being fused together to form an irregular shaped bone which suggests an attempted division into two second phalanges.

The thumb of the left hand presents a double set of metacarpal and phalangeal bones, both well formed and articulating normally, the outer however is considerably smaller than the inner. The terminal phalanges are here again deformed and fused together.

Deformities of the type seen in the left hand are not so uncommon although as a rule they are not as extensive. The type of deformity seen in the left hand is, however, very unusual. The feet were normal.

These deformities are only present in the bones which have certain common characteristics in development. The metacarpals each have two centers for development, one for the shaft and one for the digital extremity, with the exceptions of the thumb, which has one center for the shaft and one for the base, thus resembling the phalanges which develop in a similar manner. This anomaly is confined to bones having the second center in the base.

The skiagraph is also remarkable in that it shows an unusual degree of arterio sclerosis, the radials and the vessels of the hand showing distinctly.

Book Reviews.

Auto-Intoxication and Disintoxication. By G. GUELPA (Paris). Translated by F. S. Arnold, B.A., M.B., B. Ch. (Oxon.). New York: Rebman Company. 1912.

This English version of a French work presents the author's "account of a new fasting treatment in diabetes and other chronic diseases." In his introduction, the translator states that his motive in bringing this book before the British profession is to make accessible to all Dr. Guelpa's method of alternate "starvation and purgation in the relief of disease." Mr. Arnold comments on the system at some length, and reports a case in which he employed it with marked success. Guelpa's text consists of an exposition of his theory and contains reports of 27 cases of its application in the treatment of diabetes, and 15 cases illustrating its availability for disintoxication in ophthalmology. There is appended a chapter by Dr. Oscar Jennings of Paris on the use of the Guelpa method in the treatment of morphine and other drug addictions and of alcoholism, with reports of two cases.

As a composite work, this volume fails to carry conviction, though it presents much interesting and suggestive material and discus sion.

Principles of Microbiology. By VERANUS ALVA MOORE, B.S., M.D., V.M.D. One hundred and one illustrations. Ithaca, N. Y.: Carpenter and Company. 1912.

This volume, which is defined in its sub-title as "a treatise on bacteria, fungi, and protozoa pathogenic for domesticated animals," was prepared as a text-book for veterinary students beginning the study of microbiology. It is the outgrowth of the author's lecture course accompanying the laboratory work in bacteriology and protozoölogy in the New York State Veterinary College at Cornell University. Its method, system, and arrangement of material are clear and logical. The illustrations are excellent. Particular attention should be called to the conclud-

ing chapters on serum diagnosis, immunity and vaccine therapy, and epizoötic diseases of undetermined etiology, the filterable viruses. There are throughout abundant references to the literature. As a text-book of microbiology for veterinary students this book should have a definite and important field of successful usefulness.

Hypnosis and Suggestion: Their Nature, Action, Importance and Position Among Therapeutic Agents. By W. HILGER, M.D. Translated by R. W. Felkin, M.D., F.R.S.E. New York: Rebman Company. 1912.

One of the best available recent English manuals on the technic and application of hypnotism is that of Wingfield, reviewed in the issue of the JOURNAL for Dec. 8, 1910 (Vol. clxiii, p. 881). The present volume, Felkin's translation of the work of Hilger of Magdeburg, makes accessible to English readers an excellent complementary treatise on the rationale and therapeutic action and indications of hypnosis and suggestion. Like Wingfield, Hilger refers to the work of Sidis of Boston. There is an admirable introduction by Dr. Van Reutergheim, of Amsterdam, translated by A. Newbold, giving a brief survey of the history of psychotherapy since Braid's discovery in 1843, followed by a laudatory discussion of Hilger's book. The tone of the entire volume seems sound and temperate, though unmistakably foreign. It should be of particular interest to those concerned with this important domain on the borderland of medical science.

The Fourth Annual Report of the Commissioner of Health of the Commonwealth of Pennsylvania. Harrisburg: C. E. Aughinbaugh. 1911

This much belated report presents in two large volumes the record of activities of the Pennsylvania Department of Health for the year 1909. It contains an immense amount of valuable material, data, statistics, maps and tables, of interest to students in public hygiene and sanitation, but utterly incapable of review. Such reports are inevitably of importance rather as archives and evidence of work accomplished than as additions to medical literature.

For and Against Experiments on Animals. By STEPHEN PAGET, F.R.C.S. New York: Paul B. Hoeber. 1912.

This volume consists of the evidence given before the British Royal Commission on Vivisection, whose final report, published on March 12, 1912, was reviewed editorially in the issue of the JOURNAL for April 11, 1912, Vol. clxvi, p. 567. Though written at the request of the Committee of the Research Defence Society, it presents an absolutely impartial and complete statement of the data elicited by deposition before the Commission, and is therefore of exceptional value as an overwhelmingly convincing testimony in favor of the importance and legitimacy of animal experimentation in the progress of medical science. There is an excellent introduction by the Right Honorable the Earl of Cromer, and in conclusion a digest of the report of the Commission. In a dozen chapters the book details, so far as possible in the very words of the men who did the work, the decisive events and the chief results, obtained by the help of experiments on animals, in the war of the past thirty years against the diseases of animals and of human beings. It is not only a compendium of valuable and impressive information, but should prove a useful source of authoritative material for future defense of animal experimentation against those who seek to curtail or inhibit the employment of this indispensable method of medical investigation.

Children—Their Care and Management. By E. M. BROCKBANK, M.D. (Vict.), F.R.C.P., Honorary Physician, Royal Infirmary, Manchester, pp. 259. London: Henry Frowde, Oxford University Press; Hodder and Stoughton, Warwick Square, E. C. 1912.

This little book adds another to the long list of those which have recently appeared for the instruction and edification of mothers and nurses. It is no better and no worse than the average. The advice given is, on the whole, sound and reasonable. The diet recommended for older children may be all right for English children but is certainly not suitable for American children and would in most instances, if followed, necessitate the calling of a physician. The book is written from the English point of view and is, therefore, more suitable for English than American mothers. It will not prove as useful to them as several of the well known ones by American authors.

A Manual of Instruction in the Principles of Prompt Aid to the Injured. Including a Chapter on Hygiene and Disinfection. By ALVAH H. DOTY, M.D. Fifth edition. New York and London: D. Appleton and Company. 1912.

The fourth edition of this work was reviewed in the issue of the JOURNAL for Feb. 5, 1903. After an interval of ten years, this present edition "has been prepared to meet the needs of the more advanced knowledge in medicine and surgery and also to conform more closely to the principles of modern sanitation." However much the science of sanitation has progressed in the past decade, there has probably been relatively little change in the methods of first aid emergency surgery. Nevertheless the book has been brought to date, and has benefited by the elimination of superfluous material, thereby effecting a reduction from 302 to 229 pages. It is "designed for civil and military use," and should continue to prove a valuable compendium not only for physicians but for nurses and for all to whom may fall the occasion of rendering immediate care in the varied traumata of life.

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RELATIONS OF HOSPITAL AND MEDICAL SCHOOL.

IN his report for 1912, issued on Oct. 28, Dr. John H. MacCracken, Syndic of New York University and a son of the late Chancellor of the University, comments on the present medical situation in New York City, and finds a decline in the co-operation between the municipal hospital and the medical school which, he argues, is a distinct menace to the future of both school and hospital. The hospital serves its own patients and its own community more efficiently by opening its facilities in the fullest way to a rightly conducted medical school, but in recent years the tendency has been to decrease the freedom of the medical school in the municipal hospitals. He points out that the Bellevue Medical School is no longer a tenant of the city on the Bellevue Hospital grounds, and that the creation of the office of pathologist, while in every way desirable from the standpoint of the hospital, has been effected without regard to the relation of the medical school to the hospital which has hitherto existed. It is unfortunate, he says, that the affiliation existing in the wards should not be continued into the newly developed laboratory, and that the medical schools should receive no official standing in all that relates to pathological material and autopsies. Dr. MacCracken criticizes the control of the visiting physicians and surgeons by the board of trustees of Bellevue and Allied Hospitals, urging that the definition of their appointment and privileges be placed in the hands of the university faculties.

"It would seem," he says, "that if the policy of maintaining co-ordination between the medical schools and the municipal hospitals is a sound one, scientifically, educationally, philanthropically, and even politically, we should take steps to increase the affiliation now existing, to render permanent the place of the medical school in the hospital, and to define authoritatively the rights and privileges which the medical schools may enjoy. I would urge that when the new charter for the City of New York is drawn, New York University unite with Columbia, Cornell and Fordham, and see to it that the university medical schools are given an *ex officio* relation to the municipal hospitals under the charter."

The university faculty ought to be able to afford a salary ample enough to make teaching, research and work in the hospital ward the main object of the professor in its medical school. With a broadening of the relations between the medical school and the hospital, the university professor would not have to seek practical experience outside the hospital wards, nor would he have to sacrifice teaching and research work to building up a private practice.

"But," Dr. MacCracken goes on to say, "until the university can hold forth to its men greater opportunities for practice at university expense, we must expect that the career of a professor of medicine will be one where a large part of the time of preparation will lie outside the field of the teaching of medicine. If, however, the university cannot furnish a complete career for the teacher of medicine, it is of immediate importance that positions should be created in the medical world which, in opportunities for public service, in dignity and permanence of tenure, shall compare favorably with judgeships or bishopries. Of such significance should be the clinical chairs of our medical colleges."

Dr. MacCracken is emphatic on the point that the chief function of the hospital, the care and cure of the sick, should not in any way be diminished or usurped by its other important function, the training of physicians, the advancement of medical science, and the prevention of disease; and he expresses the opinion that the medical schools will succeed in establishing an *ex officio* control of wards in the city municipal hospitals only by showing that under their influence the primary end of these institutions is not at all interfered with, but distinctly advanced. In particular, he would have an official connection established between the University and Bellevue Hospital Medical College and the City Hospital on Blackwell's Island.

THE RED CROSS IN THE BALKAN WAR.

As the war in the Near East progresses, news from the Balkan Peninsula bears witness to the extremely sanguinary character of the conflict. The Greeks, Serbs, Montenegrins and Bulgars are fighting with the intensity of a thousand years of hereditary indignation against the Turk, and with the fervid consciousness of a re-crudescent nationalism. In a single series of battles, the Turks are reported to have lost 65,000 men; and the casualties among the allies, though much less, have been not inconsiderable. In the medically unprepared condition of both sides, the sufferings of the wounded have been apparently very great. In addition, typhoid and typhus fevers are reported to have broken out among the Turkish troops. Impending winter makes the hardships of the campaign still more arduous.

Under these circumstances, measures of relief instituted by the Red Cross of other nations have proved all the more needful and welcome. In last week's issue of the JOURNAL we referred particularly to the work of the British in this regard. Our own country has not been backward in doing its share, and thousands of sick and wounded, in both armies, have been aided by funds sent from the American Red Cross and given by Americans in Constantinople. The Department of State, at Washington, has cabled to the American ministers in the countries engaged in the war, for estimates of the number of soldiers of each nationality needing relief, in order that the forthcoming funds may be equitably proportioned.

In Massachusetts, a meeting of the state board of the Red Cross was held at Boston last week to take action on an appeal issued by President Taft; and a committee of 21 citizens was appointed to raise money. This committee has organized and has sent out a call for subscriptions.

While the allied forces draw menacingly nearer the gates of Constantinople in this dramatic struggle that threatens to imperil the peace of Europe, the part played by the Red Cross behind the lines and on the battlefield, remains a shining example of the universality of medical charity, which recognizes no distinctions of race, religion, or politics.

MEDICAL NOTES.

ILLNESS OF THE RUSSIAN CZAREVITCH.—During the past weeks many physicians have doubtless been interested in attempting to determine from newspaper reports a probable diagnosis in the case of the Russian Czarevitch, reported to have been sustained on Oct. 15, at the imperial hunting lodge of Spalain, an accidental injury as a result of which he had a tender swelling in the left groin, with a temperature of 103.6. As the prince, a child of eight years, though attended by the most distinguished physicians and surgeons of the empire, was not operated upon, it is presumable that his condition was not a strangulated hernia. It seemed more likely to be femoral adenitis or an acute funicular hydrocele or hematoma of the scrotum. Later reports stated that he had peritonitis from a gunshot wound inflicted by an anarchist. Whatever the true facts, they are not likely to be generally known till after the termination of his illness. He is said also to have hemophilia.

CHOLERA IN THE ORIENT.—It is reported that Asiatic cholera is again extensively epidemic in India. In the province of Madras alone, there are said to have been 21,306 cases of the disease in August, with a mortality of 10,620. The infection is stated to be also prevalent in Asiatic Turkey and in Japan, where the health department of Tokio has issued an injunction against the eating of raw fish, a custom believed partly responsible for the spread of the disease, especially in southern Japan. "Cases have been reported at Osaka, Moji, Shimonoseki, Kyoto and Kobe. On Sept. 20, a total of 231 cases was reported for all Japan. On Sept. 23, 330 cases were reported in Fuknoka-Ken."

THE RED CROSS IN JAPAN.—A recent issue of the *Oriental Review* describes the Red Cross Society of Japan as not only one of the largest but one of the best organized of its kind in the world. It has 1,500,000 members, and an annual income equivalent to $500,000.

"The society, as is well known, found it possible to render really remarkable service in the relief of the ill and wounded of the opposing forces during the Chino-Japanese and Russo-Japanese wars. With the increase of its power and influence in those times, it immediately began to extend its activities to relief work of an international nature.

"During the Boxer troubles in North China its hospital ships and reserve hospitals took care of the ill and wounded of the allied forces, and it easily won the approbation of the Powers for the excellence of its work. In the recent revolutionary outbreaks in China it sent relief corps to Hankow, China, and attended to 5000 of the

ill and wounded. In the absence of an effective Red Cross organization in China the work done by the Japanese earned the genuine appreciation of the Chinese people.

"At the time of the San Francisco earthquake it contributed 400,000 yen (about $200,000) to the relief fund, and at the time of the earthquake in Italy 414,000 lira ($103,000).

"The most remarkable feature of the activities of the Red Cross Society of Japan, however, is undoubtedly in its relief work in times of peace. It has local stations or sections all over the country, and each does an enormous amount of relief work in time of stress and trouble."

TWO CENTENARIANS.—Joe Manitou, an Indian chief of the Pottawottomies, who died recently at Traverse City, Mich., is alleged to have been born in 1792. He is survived by one son.

William Rankin, who died recently at Princeton, N. J., was born in Elizabeth, N. J., on Sept. 15, 1810. He graduated from Williams College in 1831, and for some years has been the oldest living college alumnus in America, and the only one ever known to have become a centernarian. He is survived by one daughter and three sons.

A LIVING CENTENARIAN.—Macagor Weiss, a farmer of Beaver Brook, Pa., is locally reputed to have been born in 1803. He is a Civil War veteran, has been four times married, and recently made a trip alone to New York City.

BOSTON AND NEW ENGLAND.

RECENT MILK FINES.—Before the Malden (Mass.) court recently two dealers of that city were fined $50 and $15 respectively for selling milk below the standard required by law. The milk sold by the former delinquent was found to contain 15% of added water. Before the Dorchester police court recently a dealer of Milton, Mass., was fined $10 on each of three counts for selling milk not up to the standard required by law.

STATE CONFERENCE OF CHARITIES.—The ninth Massachusetts State Conference of Charities was held recently at Haverhill, Mass. At the evening session on Wednesday, Oct. 23, the topic of discussion was "The Defective." Dr. Walter E. Fernald, of Waverly, Mass., considered the "Relation of Defectives to the Community"; Dr. Elmer E. Southard, of Cambridge, Mass., the "Relation of Mental Defectives to Disease and Heredity, and Its Social Significance"; and Dr. George L. Wallace, of Wrentham, Mass., "The Probable Future of the Feeble-Minded in Massachusetts." The subject for the evening session on Thursday, Oct. 24, was "Educational Work for the Health of Children Under Two Years." Dr. William J. Gallivan of Boston reported on "Work by Municipalities"; Mrs. William L. Putnam, of Boston, on "Work by Private Societies," and Dr. Fritz B. Talbot, of Boston, on "Work by Hospitals."

GASTROTOMY FOR MULTIPLE FOREIGN BODIES.—Report from Pittsfield, Mass., on Oct. 29, states that Luke Parsons, a local nail-swallower, was recently operated on at the House of Mercy Hospital in that city, with the removal from his stomach of 132 nails, 2 keys, 6 jacknives, and a nondescript piece of iron. Several of these foreign bodies are said to have punctured the gastric wall, causing localized peritonitis.

PUBLIC ADDRESSES BY BOSTON PHYSICIANS.—A movement has been initiated by the American Medical Association to provide, during the coming winter, a series of addresses on topics of hygiene before "public meetings, in schools, women's clubs, teachers' institutes, and other gatherings." For this purpose, "a speakers' bureau has been established in Chicago," and arrangements have been made with physicians of distinction in the various sections and communities of the country to deliver the addresses. The Boston physicians who will take part in this project are Dr. Horace D. Arnold, Dr. Richard C. Cabot, Dr. William T. Councilman, Dr. Thomas F. Harrington, Dr. John L. Morse, and Dr. Mark W. Richardson.

ADDRESSES ON PURE FOOD.—At a meeting of the Twentieth Century Club in Boston on Nov. 2, addresses on the subject of "Pure Food" were made by Dr. Woods Hutchinson, of New York, and Dr. Willard A. Pauly of Boston.

AMERICAN ASSOCIATION OF CLINICAL RESEARCH.—The fourth annual meeting of the American Association of Clinical Research was held in New York City, at the Academy of Medicine, on Saturday of last week, Nov. 9. There was a forenoon, an afternoon, and an evening session, the latter being open to the public. The opening address was by the president of the Association, Dr. Alvin Roy Peebles, of Boulder, Colo. Among the Boston physicians who presented papers were Dr. Frederick H. Williams, on "Electricity in the Treatment of Rectal Diseases"; Dr. R. Kendrick Smith, on "Therapeutic Possibilities of Manual Adjust-

ment"; Dr. James Krauss, on "Disease Conditions Expressive of Correct Diagnosis"; and Dr. Frank L. Newton, on "Ectopic Pregnancy."

SEIZURE OF OPIUM AT BOSTON.—A considerable quantity of opium and a complete outfit for smoking the drug were seized by United States customs inspectors recently aboard the steamer *Ambria* upon her arrival in the port of Boston from Singapore, Hong Kong and Shanghai.

RESTORATION OF THE VIGILANT.—Within a few days the Boston health tug *Vigilant*, which recently has been largely rebuilt and equipped at a cost of $15,000, will be again placed in commission.

"More deck room has been added, facilitating work alongside a trans-Atlantic liner, the engine has been improved, and room for more passengers has been made, in case of necessity for bringing immigrants to and from Gallup's Island hospital."

RECENT BEQUEST.—The will of the late Lucy Lee Fessenden of Dedham, Mass., which was filed last week at the Norfolk probate court in that town contains a bequest of $200 to the Dedham Emergency Nurses' Association.

A HOSPITAL JUBILEE.—The fiftieth anniversary of the founding of the New England Hospital for Women and Children was commemorated at that institution on Tuesday, Oct. 29, with appropriate ceremony. There were addresses and a reception and tea, and all departments of the hospital were open for inspection.

FIRE IN A HOSPITAL.—In a storeroom at the Emerson Hospital, Forest Hills, recently, a number of books and surgical instruments were destroyed by a fire, which did several hundred dollars' worth of damage.

TWO HOSPITAL SALES.—At a rummage sale and auction held in Boston recently for the benefit of the Massachusetts Babies' Hospital, a total of over $3000 was realized.

The annual sale of the Cambridge Hospital League was held in Cambridge, Mass., on Friday and Saturday, Oct. 25 and 26. It is hoped that $500 will be obtained for the benefit of the hospital.

NEED OF A HOSPITAL AT IPSWICH.—The recent appearance of typhoid fever at Ipswich, Mass., has served to emphasize the need of a hospital in that town. An appeal has been made to the public for subscriptions towards a fund for this purpose.

A MEDICAL JOURNAL SUSPENDS PUBLICATION.—It is with great regret that we learn that the *Yale Medical Journal* is to suspend publication after its next issue. This periodical, which is edited by students in the Yale Medical School, has appeared monthly at New Haven, Conn., since 1894.

BOARD OF HEALTH EXHIBITS.—The exhibit of the Massachusetts State Board of Health at the recent International Congress on Hygiene and Demography, which was described in the issue of the JOURNAL for Oct. 10 (Vol. clxvii, p. 517), is now being displayed at the Boston Public Library. It is announced that the exhibit of the Boston Board of Health was awarded three diplomas, in the divisions of child hygiene, food inspection and communicable diseases, respectively.

AN ENDURING FINANCE.—A recent newspaper account of a patient going to hospital for operation states that "his finance accompanied him and remained with him throughout the ordeal." This amusing misprint for *fiancée* involves a subtle comment on doctors' fees.

SMALLPOX AT CLINTON AND SOUTH LANCASTER.—On Oct. 23 a case of smallpox was discovered at the Clinton (Mass.) Hospital. The entire institution was placed under quarantine, and the patient removed to the infirmary of the South Lancaster Academy, where the disease was found to be epidemic, and where there have been already 16 cases and one death of the disease. The academy and the entire town of South Lancaster were quarantined, and general public vaccination instituted. None of the smallpox patients had ever been vaccinated.

GLANDERS IN HAVERHILL.—Three cases of human glanders were discovered in Haverhill, Mass., on Oct. 21, and sent to the Haverhill City Hospital. The father of the family had been exposed to a horse with farcy.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Nov. 2, 1912, is 197, against 174 the corresponding week last year, showing an increase of 23 deaths,

and making the death rate for the week 14.27. Of this number 95 were males and 10.2 were females; 191 were white and 6 colored; 116 were born in the United States, 77 in foreign countries, and 4 unknown; 54 were of American parentage, 126 of foreign parentage, and 17 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 36 cases and 1 death; scarlatina, 27 cases and 0 deaths; typhoid fever, 4 cases and 1 death; measles, 56 cases and 1 death; tuberculosis, 60 cases and 16 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 14, whooping cough 1, heart disease 30, bronchitis 1. There were 13 deaths from violent causes. The number of children who died under one year was 35; the number under five years 46. The number of persons who died over sixty years of age was 74. The deaths in hospitals and public institutions were 76.

Deducting the deaths of non-residents, the total is 170. The corrected death-rate is then 12.31.

Cases of infectious diseases reported to the Boston Board of Health for the week ending Nov. 5, 1912, are: diphtheria, 42; scarlatina, 24; typhoid fever, 7; measles, 56; smallpox, 0; tuberculosis, 46.

The death rate of the reported deaths for the week was 15.42.

NEW YORK NOTES.

GIFT TO HORTICULTURAL LIBRARY.—The library of the State College of Agriculture at Cornell University has received a gift of 5,000 volumes from Mrs. John Craig, whose distinguished husband occupied the chair of horticulture in that institution for eleven years. This horticultural library is one of the best in the country, containing many valuable and interesting works. Among them is a history of rare plants, by Clusius, published in 1583, and George Washington's book on "Husbandry and Farming," published in 1803, is also included in the collection.

HYDRIATIC TREATMENT OF SCIATICA.—Dr. L. Brieger, Professor of Therapeutics and Special Pathology, in the Berlin University, lectured by invitation of Dr. Baruch to the students of the Hydrotherapeutic Department of the Vanderbilt Clinic, College of Physicians and Surgeons (Columbia College), on Wednesday, the 9th of October, 1912, at 3 p. m.

He demonstrated a hydriatric method of treating sciatica, devised by himself, which consists of active and passive movements designed to put the nerve on the stretch, together with firm trembling pressure upon the painful spots, first gentle, then increased, until it no longer produces pain. After the painful parts have been subjected to steam douches of ten minutes' duration, these movements are made while the patient is submerged in water at 95°, reduced at each treatment. The demonstration was successful, the patient expressing himself as greatly relieved and able to walk with ease.

A HAITIEN LEPER IN NEW YORK.—A press report on Oct. 11 states that:

"A Syrian woman declared to be a victim of leprosy and who was deported from Port au Prince, Haiti, by the military authorities there under the decree calling for the expulsion of Syrians from that island, is being detained at quarantine here by the state health authorities.

"Health Officer O'Connell made it known tonight that he has called the attention of the federal authorities to the case with a request that they decide what shall be done with the woman, whose husband and five children are also being prevented from entering this country. It was stated that the circumstances under which a person suffering with a communicable disease might be expelled from Haiti and sent to this country will likely result in an exchange of communications between the department of state and the Haitien government.

"The woman who is detained was removed Oct. 7 from the steamship *Allemania*, from Port au Prince. According to information received by Health Officer O'Connell, the officers of the *Allemania* were practically forced by the Haitien officers to take the Syrian family on board, although it is stated they knew the vessel was bound for the United States. According to a story of the crew of the *Allemania* told to the health authorities here, when an attempt was made to turn back the Syrian family at Port au Prince, there was a riotous demonstration."

MORTALITY STATISTICS.—The State Health Department reports that in twenty years there has not been a July with so small a number of deaths under the age of five years in the State as there were in July of this year. Twenty years ago it was common for 50 per cent. of the deaths of the month to be of children less than five years old, and this year such deaths were down to 30 per cent. In July, 1892, they amounted to 6,855, while in July, 1912, notwithstanding the great increase in population, there were but 3,414, or just about one-half as many.

In the month of August the total number of deaths in the State was practically the same as in July. This is unusual, as for the past twenty years the average July mortality has been 12,000, and that of August, 11,235. There were 300 more infant deaths than in July and there were also 436 more deaths from diarrheal diseases, The increase was in the rural mortality which from all causes was greater than in July, while the urban mortality was less. The infant and the diarrheal mortalities were increased over July in both the urban and rural population, but they were relatively greater in the rural, where the diarrheal deaths were double those of July. In the cities it is unusual to find, as was the case this year, a larger diarrheal mortality in August than in July. In August, diphtheria, for the second time on record, had a mortality (for a month) below 100. This disease has been steadily decreasing in fatality, and although last year the number of deaths from it was unusually small, in the eight months of 1912 there has been a saving over 1911 of 250. In the month of August, while there were 11,259 deaths in the State, the number of births reported was 19,220. 15,799 of the births were urban, and 3,421 rural; and of the former class, 11,525 were in New York City.

Address by Dr. Carrel.—Dr. Alexis Carrel of the Rockefeller Institute made two addresses last week before medical societies of the city. The first was before the Medical Association of the Greater City of New York, On October 21, when he spoke on "Transfusion of Blood with Technic Recently Much Improved and Simplified." The method described by him was a modification of that which he had suggested to Dr. George E. Brewer, in which a glass tube, with a coating of paraffin, was employed. The results of this seemed very satisfactory in experiments on animals by Dr. Brewer and others; but when they came to employ it on the human subject it was found impossible to make use of the same large cannula as in the case of dogs, and it became necessary to use smaller tubes. The method was simpler and easier than that of Crile, but its absolute failure in one instance, on account of the small size of the radial artery of the donor, led to its abandonment. The principal feature of the modification described by Dr. Carrel was the use of a silver tube of small size, but with walls so thin that the lumen of the tube is practically of the same size as its external measurement. The connection is between the radial artery of the donor and the saphenous vein of the recipient, and a dilator is a useful adjunct. Dr. Carrel's second address was before the New York Physicians' Association, on October 24, and his subject on this occasion was "Recent Experiments in Life, Senility and Death." This was a further development of ideas promulgated in his paper before the American Medical Association last June, on "The Preservation of Tissues and Its Application in Surgery," and he has now succeeded, after months of the most laborious and exacting experimentation, in having the heart, liver, stomach, kidneys and other organs of a dog live and functionate for ten hours after removal from the animal's body. There is thus presented the remarkable phenomenon of a living "visceral being" totally separated from the brain and medulla oblongata, supposedly presiding over the functions of life.

Lectures on Psychology.—The first of a series of lectures on "New Aims and Tendencies in Psychology" was given at Columbia University on October 29, by Dr. Felix Krueger, professor of philosophy and psychology in the University of Halle-Wittenberg, who is the Kaiser Wilhelm exchange professor at Columbia for the present season. He paid a tribute to the advances made in psychology in America, and in the course of the lecture said: "If we wish to understand the actual purposes and activity of modern psychology, we must examine particularly the situation in America and Germany. From the beginning of modern scientific psychology Americans have played an important and effective part in its study. It was at Leipsic that Wund, my venerable teacher, established the first laboratory for experimental psychology, and it was Wund's first assistant and co-operator, my distinguished colleague, Prof. James McKeen Cattel, who got the first special professorship in psychology in the world. That was here in the United States, as you all know. Since then a rapidly increasing number of American students and investigators have been found working in psychological laboratories of the German universities. The United States can boast at the present time of possessing a more extensive system of psychological instruction and research than any other country. Owing to manifold cultural interrelations between America and Germany, those of psychol-

ogy are the closest and most fruitful. . . . However, it cannot be denied that, generally, American psychologists are more conversant with the history, the results, and the actual tendencies of German psthology than are the Germans with the extensive, the enterprising, and the original work done by American psychologists. The international exchange of university teachers has its chief purpose, I think, in establishing and maintaining a more complete scientific reciprocity between the two cultured nations."

HOSPITAL BUREAU OF STANDARDS AND SUPPLIES.—The third annual report of the Hospital Bureau of Standards and Supplies, soon to be published, presents the record of activities of that institution for the year ending Sept. 30, 1912. The bureau is "an association conducted by a group of private hospitals (in New York in the interest of economy and and higher efficiency." It has now a membership of 15 institutions on a contributing basis of 47 units. Agreements are entered into by the bureau with various firms and dealers to supply members with standard supplies at wholesale prices. Sixty-three such agreements are now in force, and during the calendar year 1911, the purchases by members of articles specified under them amounted to over $362,000."

"The Executive Committee of hospital superintendents works for increased efficiency by means of recommendations to their fellow members. Each hospital sends requisitions directly to the suppliers under the agreements, receives invoices direct, and is liable only for its own purchases, which it pays for directly to the suppliers. The standards recommended, based on the interchange of information regarding practice, quality an experience, have an educational value, which should be considered in addition to the economics secured. While each institution preserves its autonomy, the extent to which the members co-operate in supplying information, in using the agreements secured, in advising on questions of practice, measures the advantages to the members and the success of the Bureau. This co-operation is the essence of the association.

"The Committee is convinced from the benefits secured to members that the extension of the work of the Bureau would be desirable for other hospitals, and recommends superintendents and officers who are interested in co-operation and higher efficiency to visit the offices of the Bureau for further information."

Current Literature.

MEDICAL RECORD.

NOVEMBER 2, 1912.

1. FRIEDMAN, H. M. *The Diagnosis of Mental Conditions.*
2. SEYMOUR, N. G. *Caloric Feeding in Tuberculosis. A Study of the Efficiency of the Dietary at the Boat Camp, "Westfield."*
3. POMEROY, J. L. *Tuberculosis of the Brain; Report of a Case of Tubercle of the Left Optic Thalamus.*
4. COBURN, R. C. *Safety and Science in Nitrous Oxide Administration.*
5. WAUGH, W. F. *A Therapeutic Resource in Hernia and Other Bowel Obstructions.*
6. CLAYTOR, T. A. *Two Cases of Tumor of the Spinal Cord.*
7. STAUNTON, E. M. *A Simple, Efficient and Elastic System for Indexing Case Histories and Filing Current Literature and References.*

NEW YORK MEDICAL JOURNAL.

NOVEMBER 2, 1912.

1. BRILL, A. A. *The Oedipus Complex.*
2. BARTON, W. M. *The Ecchymotic Skin Reaction on Acquired Pseudohemophilia: Sicard's Syndrome.*
3. SALMON, T. W. *The Scientific Treatment of the Insane—A National Problem.*
4. DOTY, A. H. *The Rôle of Disinfection, and the Influence of Infected Rooms and Fomites in the Transmission of Infectious Diseases.*
5. BURKE, J. C. *The Use of Mixed Infection Vaccines in Skin Infections.*
6. CYRIAX, E. F., AND CYRIAX, A. K.. *Manual Treatment of the Abdominal Sympathetic.*
7. *WEIDLER, W. B. *Implantation of Fat into Tenon's Capsule after Enucleation.*
8. GRIFFITH, F. *Local Treatment of Two Pistol-shot Cases Using Hot Water Applications.*
9. GUTMAN, J. *The First Medical Clinic of Vienna; Von Noorden's Division.*

7. Weidler advocates the implantation of fat into the capsule of Tenon after enucleation of the eye and reports three cases in which he performed this operation. The advantages to be gained by the procedure are several: There is nothing that can be broken at any future time, as in the case of a glass ball stump. The fat implanted comes from the patient's own body and is therefore not really a foreign body in the orbit. The fat is easily inserted and is soon held in place by the adhesions and ingrowths of connective tissue. It is not irritating and there is no danger of sympathetic ophthalmia.

[L. D. C.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

OCTOBER, 1912.

1. SELLARDS, A. W. *The Determination of the Equilibrium in the Human Body Between Acids and Bases with Especial Reference to Acidosis and Nephropathies.*
2. *FLINT, J. M. *Embryonic Bands and Membranes along the Cecum.*
3. *EVANS, F. A., WYNNE, H. M. N., AND WHIPPLE, G. H. *Reflex Albuminuria.*

2. Flint describes with great care and detail the embryological development of bands and membranes along the cecum. These he traces along during the

growth of the body and discusses their relationship to chronic appendicitis, chronic constipation and the so-called "Lane's kink." He discusses the symptoms brought on by this condition, its etiology and surgical treatment. There are 13 excellent plates.

3. This paper is based upon studies in metabolism conducted upon dogs. The writers have noticed, during such studies that where a catheter or cannula is sewn into the bladder, reflex albuminuria results. This phenomenon they have carefully investigated. The albumin comes directly from the kidneys and from perfectly normal kidneys. Catheterization of the ureter without bladder irritation will cause no albuminuria. They have not yet found it present in human cases. The paper is of distinct interest.

[J. B. H.]

Surgery, Gynecology and Obstetrics.

October, 1912.

1. *Coffey, R. C. *The Principles Underlying the Surgical Treatment of Gastro-Intestinal Stasis, Due to Causes Other than Structural or Ulcerative Conditions.*
2. *McGrath, B. F. *Intestinal Diverticula: Their Etiology and Pathogenesis; with a Review of Twenty-seven Cases.*
3. Hunney, G. L. *The Treatment of Pyelitis.*
4. *McKenty, F. E. *On Paget's Disease of the Breast.*
5. *Tracy, S. E. *Nephro-Ureterectomy in Tuberculosis of the Kidney.*
6. Kennedy, B. *Uretero-Appendiceal Anastomosis; a Surgical Procedure Designed to Meet the Emergency of Transplantation of the Ureter when Shortened by Disease or Surgical Accident.*
7. Eisendrath, D. N. *The Clinical Importance of the Horseshoe Kidney.*
8. Morris, R. T. *Attempt at Staining Sarcoma with Methyl-Blue in the Living Patient.*
9. Curtis, A. H., and David, V. C. *Experiments in the Treatment of Acute Anemia by Blood Transfusion and by Intravenous Saline Infusion.*
10. Gergö, E. *The Curative Effect of the Normal Animal Serum in Suppurative Processes.*
11. Russ, R. *The Cecum from a Surgical Standpoint.*
12. Barkley, A. H. *Some Facts not Generally Known Regarding Ephraim McDowell.*
13. Kerr, H. H. *Pylorectomy by the Basting Stitch Method.*
14. Flint, J. M. *A New and Simple Form of Apparatus for Nitrous Oxide-Oxygen Anesthesia.*
15. Amberg, E. *Keloid Formation in Scar After Mastoid Operation.*
16. Cramp, W. C. *A New Retractor-Drain in the Treatment of Small Infected Wounds about the Hand.*
17. Hagner, F. R. *Regurgitation of Fluid from the Bladder to the Kidney, during Ureteral Catheterization; Report of a Case.*
18. Kollischer, G. *Technique of Suprapubic Prostatectomy.*
19. Kuhn, H. P. *Thymol-Alcohol as a Disinfectant of the Field of Operation.*
20. Littig, L. W. *The Technique of Tubal Sterilization.*

1. Coffey's sixty-four page article on the principles underlying the surgical treatment of gastro-intestinal ptosis is most painstaking and thorough; it is well worth reading in detail. His general deductions are as follows: there is a direct relation between gastro-intestinal stasis and abdominal ptosis which is purely physical and mechanical. Mechanical obstructions always occur at the point of junction of a fixed and movable part of the intestinal tube except when due to inflammatory adhesions. The large majority of cases of ptosis may be successfully treated and the patient made perfectly comfortable by medical and dietary measures. Surgery should never be considered for the treatment of ptosis *per se*. Gastric or intestinal stasis not relieved by this means constitutes the only excuse for surgery in this class of cases. An operation which fixes a floating kidney without fixing the colon at the same time is not a sound surgical procedure. Sigmoid ptosis producing severe stasis can only be treated successfully by short circuiting or exciting general visceroptosis, the pathognomonic sign of which a floating left kidney is not a surgical condition. Coffey also emphasizes the fact that this field of surgery may become one of the most dangerous in relation to surgical abuse in the hands of the surgical "confidence man" who needs no other excuse for performing a surgical operation than the consent of the patient. The x-ray may become, also, a most dangerous weapon in the hands of the unscrupulous because it is so absolutely convincing to the laity.

2. McGrath draws attention to the fact that during the middle and later stages of life intraabdominal conditions often diagnosticated as carcinoma in a large percent. of cases may actually be inflammatory processes secondary to a diverticulitis. In 27 cases examined 74.1 per cent. proved to be inflammatory instead of malignant.

4. McKenty believes that Paget's disease of the breast is due to irritation, the source of which arises in the heart itself (alteration of secretion in the involuting acini). Complete early removal of the entire breast is the only treatment.

5. Tracy believes that a diseased or partly diseased tuberculous ureter should always be removed in doing nephrectomy for tuberculosis. Many cases of persistent sinus, cystitis, and delayed convalescence would thus be avoided.

[E. H. R.]

The Lancet.

October 12, 1912.

1. *Battle, W. H. *Ventral Hernia. Lect. II.*
2. Ballance, C. A. *A Case of Septic Thrombosis of the Left Sigmoid, Left Cavernous and Left Inferior Petrosal Sinuses with a Suggestion for Treatment in Future Cases.*
3. *Fraser, H., and Stanton, A. T. *The Prevention and Cure of Beri-beri.*
4. Dykes, A. L. *Temporary Partial Heartblock Occurring as a Sequel to Acute Pneumonia.*
5. Houghton, J. W. H. *Spinal Analgesia. Report on 400 Operations at the Military Hospital, Aldershot.*
6. Malcom, J. D. *Ovariotomy about Forty Years After a Discharge of Foetal Bones through the Rectum; Recovery.. Death a Year Later, at the Age of 78 from Strictures of the Small Intestine and of the Common Bile-Duct.*
7. McDonogh, J. E. R. *The Life Cycle of the Organism of Syphilis.*

1. Battle continuing his paper on ventral hernia considers this condition in infants and children, umbilical hernia in adults, the question of operation, the details of operation and the use of trusses.

3. The writers, realizing that beri-beri is due to the use of polished rice, discuss the various measures which should be taken in countries where the disease is prevalent to restrict the production and use of polished rice. For the cure of beri-beri they have prepared an extract from the rice polishings which contains the substance necessary to prevent beri-beri. This extract has been of the greatest value in curing the disease in the animals, hens, on which they experimented.

[J. B. H.]

BRITISH MEDICAL JOURNAL.

OCTOBER 5, 1912.

1. *WALTON, A. J. *The Differential Diagnosis of Surgical Dyspepsias.*
2. DAWSON, H. G. W. *A Congenital Deformity of the Forearm and Its Operative Treatment.*
3. KINGHORN, A., AND YORKE, W. *On the Influence of Meteorological Conditions on the Development of Trypanosoma. Rhodesiense in Glossina Morsitans.*
4. BROUNE, F. J., AND MACKENZIE, J. R. *The Etiology and Treatment of Miners' Nystagmus with a Review of 100 Cases.*
5. CALWELL, W. *Aneurysm of the Anterior Cusp of the Mitral Valve in a Case of Staphylococcal Endocarditis.*
6. HAULGRAVE, A. *A Case of Ulcerative Endocarditis.*
7. JOHNSTONE, W. *A Case of Abnormal Pulse Rhythm.*

BRITISH MEDICAL ASSOCIATION.

SECTION OF SURGERY.

8. PARKER, R. *Introductory Remarks.*
9. *CRIPPS, H. et al. *Discussion on the Surgical Treatment of Rectal Cancer.*
10. *FENWICH, H. et al. *Discussion on the Diagnosis and Treatment of Urinary Tuberculosis.*
11. HANDLEY, W. S. *A Transarticular Method of Operation for Certain Difficult Fractures Near the Knee and Elbow.*
12. DOW, A. *Excision of a Pile Area by a Simple and Bloodless Method. The End Results of Fifty Operations.*
13. BICKERSTETH, R. A. *The Shape of the Kidney in Certain Ureteral Obstructions.*
14. DOBSON, J. F. *Excision of Gastric Ulcer.*
15. NEWBOLT, R. P. *A Case of Aneurysm of the Second and Third Parts of the Left Subclavian Artery in a Woman.*
16. *FREYER, P. J. *1000 Cases of Total Enucleation of the Prostate for Radical Cure of Enlargement of that Organ.*
17. PATERSON, H. J. *Acute Appendicitis. A Plea for Early Operation.*
18. EDINGTON, G. H. *Observations on the Laceration of Large Arteries.*
19. *WHEELER, W. I. de C. *Surgery of the Sacro-iliac Joint.*
20. COLLINSON, F. W. *A Demonstration on Lighting of Operation Tables.*

1. Walton discusses the symptoms, discomfort and pain, changes in appetite, hematemesis and melena, and vomiting and their relation to gastric ulcer and gastric cancer. He recommends operation in any case presenting such symptoms after the age of 35 which is not markedly relieved by a few weeks' adequate medical treatment; in any case where symptoms have recurred after being once relieved by medical treatment; in any case where there is definite evidence of gastric distension or of tumor or any case with repeated hemorrhage.

9. Cripps devotes a large part of his paper to the pathology of the different forms of rectal cancer. In operating, he recommends excision only in those cases in which there is no obvious dissemination among other organs, and in which the growth is not firmly fixed to neighboring parts. He discusses the value of the sacral and peritoneal routes. The disease is twice as frequent among men as among women; when removal was practicable in his cases there were 40 per cent. of recoveries. Recurrence is rare after two years.

10. Fenwich urges that expert bacteriological advice be obtained in all cases of renal pain or cystitis. He believes that in 90 per cent. of cases an expert bacteriologist can give definite opinion as to the presence of tubercle bacilli in the urine and the grade of the destructive process. He mentions "the swollen ureter of tuberculosis" and the "pulled-out" ureteral orifice as very important.

16. Freyer describes 1000 cases of operation for enlarged prostate. His mortality was 5.5 per cent. In 181 cases the operation was complicated by stone in the bladder. He uses the suprapubic route for which his operating time is about 8 to 10 minutes.

19. Wheeler describes his operation on what he chooses to call "sacro iliac disease," meaning by this term apparently either tuberculous or some other infection of this region. The paper would be of more value were this made clear. He describes this indefinite disease as a very fatal one and one in which only early radical treatment by operation can do good.

[J. B. H.]

THE INDIAN MEDICAL GAZETTE.

OCTOBER, 1912.

1. BANNERMAN, W. B., AND LUKIS, C. P. *An Investigation into the Treatment of Snake-Bite by Permanganate of Potassium.*
2. NESFIELD, V. B. *The Extraction of Cataract in Its Capsule, by Division of the Suspensory Ligament.*
3. BROWSE, G. V. *A Special Type of Recurrent Fever Due to a Spirochaeta.*
4. ROGUS, L. *Gleanings from the Calcutta Post-Mortem Records. VI. Diseases of the Kidney.*
5. FRANKLIN, G. D. *Surgical Cases.*
6. SUHRAWARDY, O. G. H. *Notes on a Case of Double Volvulus of the Large Intestines and on One of Posterior Gastro-jejunostomy.*
7. COOPER, D. G. *A Case in which Von Pirquet's Reaction was Followed by Ascites.*
8. TAYLOR, D. M. *The Relationship Between "Pyrexia of Uncertain Origin" and Enteric Fever.*
9. ANDERSON, A. R. S. *Abscess of Liver with Amoebae, but without Antecedent Bowel Disease.*
10. MATTHEWS, E. A. C. *A Fatal Case of Hemorrhage Into the Pancreas.*
11. THORNELY, W. H. *Bullet Wound of the Lower End of the Femur. Death from Hemorrhage from the Popliteal Artery Nine Days Later.*
12. STEIN, H. B. *Case of Molluscum Fibrosum with Definite Family History.*

THE PRACTITIONER.

OCTOBER, 1912.

1. *EDMUNDS, A. *Acute Intestinal Obstruction in Children.*
2. *CARSON, H. W. *The Surgical Aspect of Indigestion.*
3. *MOON, R. B. *Clinical Aspects of Graves' Disease.*
4. BREND, W. A. *Law and Medicine.*
5. BLUMFIELD, J. *A Review of Some Recent Work in Anesthetics.*
6. *GREEN, S. F. St. D. *Some Points in Connection with Appendicitis in Children.*
7. *STIVENS, H. E. S. *Acute Appendicitis in Children.*
8. *BARLOW-EBERHARDT, F. C. *The Etiology Diagnosis and Therapeutics of Appendicitis.*
9. *SHAPLAND, J. D. *Appendicitis, From a General Practitioner's Point of View.*
10. COBB, I. G. *Suggestive Medicine.*
11. HORSFORD, C. *Why Voices Fail.*

1. In this paper Edmunds, after naming the various symptoms of obstruction takes up briefly the various causes of this condition. Among others he speaks of tuberculosis which may form kinks, bands,

and adhesions, congenital malformations, cysts of the intestinal wall, hernia, foreign bodies, appendicitis, intussusception and others.

2. Carson describes some of the methods of estimating the functional activity of the stomach and the examination of stomach contents, feces and their bacteriology. He then takes up various gastric and other abdominal disorders, pangastritis, duodenal ulcer, gall-stones, pancreatic disease, appendicitis, colitis, membranous colitis, etc., and considers their symptoms and the surgical treatment of each.

3. This article is a brief description in almost tabular form of the important symptoms of Graves' Disease according to the various groups, thyroid, cardiac, venous, eye, muscular, skin, etc. He speaks of diagnosis and under treatment emphasizes the need of rest.

6, 7. Green and Stivens in these two articles review the causes, symptoms and treatment of appendicitis as it occurs in children with special reference to the differences found in this condition in children as compared with adults. Tuberculosis and threadworms are causes not often seen in adults. Diagnosis is often difficult especially from pneumonia or pleurisy. Stivens bases his article on 208 cases, 7 years or under. He finds fecal concretions in 11 per cent. of the cases. He advises immediate operation as soon as the diagnosis is made. The mortality in these 208 cases was 41.8 per cent.

8, 9. These are general articles whose titles are self-explanatory. In them various phases of the diagnosis and treatment of appendicitis are discussed.

[J. B. H.]

Deutsche Medizinische Wochenschrift. No. 40.

October 3, 1912.

1. *Hoffman, A. *The Treatment of Acute Circulatory Disturbances, Especially those Due to Acute Infections.*
2. Novak, J., Porges, O., and Strisower, R. *Renal Diabetes of Pregnancy.*
3. Steiger, O. *A Case of Diabetes Insipidus; Its Relation to Disturbances of Internal Secretion and to Vagus Disturbance.*
4. Schaeffer, E. *Sources of Error in Estimating the Resistance of Erythrocytes by the Method of v. Liebermann and v. Fellinger.*
5. Schroeter. *Typhoid Carriers.*
6. Lewey, J. *Osteopsathyrosis Idiopathica.*
7. Kulenkampff, D. *Anesthesia of the Brachial Plexus.*
8. Rohner, P. *Transverse Tracheotomy.*
9. Jankowski, J. *A Case of Diaphragmatic Hernia.*
10. Bull, P. *Potentia Generandi after Bilateral Tubercular Epididymitis.*
11. Deutschlander, C. *Infantile Spinal Paralysis.*
12. Dutoit, A. *Glaucoma.*

1. Hoffman's paper presents views which are extremely interesting to an American, inasmuch as he makes no mention of strychnia as a drug useful in the treatment of acute circulatory failure. Camphor, caffeine, digitalis preparations, strophanthin, adrenalin and even pituitrin he uses singly and in combination but strychnia, which is probably the most popular remedy for acute collapse in this country, has no place in his scheme of treatment. Alcohol he believes may be useful, especially if the patient be accustomed to its use.

[C. H. L., Jr.]

Münchener Medizinische Wochenschrift. No. 40.

October 1, 1912.

1. Henkel, M. *The Transperitoneal Cervical Caesarian Section.*
2. *Esser. *Myeloblastic Chloroleukemia with Aplastic Hyperchromatic Anemia.*
3. *Mayer, G. *The Question of Meat-poisoning.*
4. *Schwarz, G. *Hyperkinetic and Dyskinetic Forms of Constipation.*
5. Eichelberg, F. *Organic, Mental and Nerve Diseases After Accident.*
6. Dreyfus, G. L. *Occurrence, Avoidance and Treatment of Nerve-recurrence after Salvarsan.* (To be continued.)
7. Stoscher, A. *Treatment of Syphilis with Neosalvarsan.*
8. Lehle, A. *Prophylaxis of Ophthalmoblenorrhoea Neonatorum.*
9. Hirg, O. *Therapeutic Results with "Agara."*
10. Bochem, C. *Is the Use of "Kalichloricum Toothpastes" Dangerous?*
11. Scheidemandel, E. *Röntgen-diagnosis of Eventratio Diaphragmatica.*
12. Klausner, E. *A Characteristic Drug-eruption after Pantopan.*
13. Neudörfer, A. *Indirect Rupture of the Intestine by Perforating Gun-shot Wounds.*
14. Rubin, H. *A Case of Obstinate Hemorrhagic Diathesis Cured by Injecting Defibrinated Blood.*
15. Abderhalden, E. *Supplement "The Diagnosis of Pregnancy by the Optic Method," etc.*
16. Benario. *Remarks on the Frequency and Severity of Neuro-recurrence after Salvarsan.*
17. Hergenhahn, E. *Comparative Tests with Röntgen-apparatus.*
18. Olpp. *Tropical Diseases and Causes of Disease Shown Alive with the Cinematograph.*

2. Esser reports an interesting case having a curious blood picture which combined the chief characteristics of myelogenous leukemia and of aplastic pernicious anemia. The autopsy showed also some enlarged bronchial glands having the typical characters of chloroma. Recent theories of the relation between chloroma and leukemia are discussed.

3. Mayer reports an epidemic of food poisoning in which it seems that B. proteus vulgaris played an important part. In many cases it was present in enormous numbers. In a few cases paratyphoid B. was found also.

4. By means of Röntgenological investigation, the writer distinguishes two chief types of chronic constipation.

The first or "hyperkinetic" type shows absence of the physiological division of the fecal mass, delayed entrance of the same into the rectum, insufficient filling of the ampula, and fragmentary discharge. The colon is often elongated.

In the second or "dyskinetic" type the filling of the ampula occurs in the normal time but there exists either a pathological increase of segmentalism or a retrograde peristasis.

[G. C. S.]

Wiener Klinische Wochenschrift. No. 41.

October 10, 1912.

1. Schütz, E. *Gastric and Duodenal Ulcer.*
2. Baron, A., and Bársony, T. *The Roentgen Diagnosis of Duodenal Ulcer and Other Duodenal Affections.*
3. Eisler, F., and Kreuzfuchs, S. *The Diagnostic Significance of Duodenal Gastric Motility.*
4. Gross, M. *Brief Considerations on the Gross Physical Properties of the Human Duodeno-jejunal Juice.*
5. Boudi, S. *Reflex Movements, with Rotation of the Head, in Cerebral Affections.*
6. Barbachzi, F. *The Examination of the Stool in Occult Bleedings in Gastric Carcinoma.*

No. 42. Oct. 17, 1912.

1. HERRMANN, E., AND NEUMANN, J. *The Lipoids of Pregnancy and Their Excretion after the Completion of Pregnancy.*
2. STEIN, R. D. *The Biologic Differential Diagnosis Between Leprosy and Tuberculosis.*
3. CHIARI, D. M. *Diseases of the Submaxillary Salivary Glands.*
4. ST. BERNSTEIN. *A Case of Torsion Convulsion.*
5. BENEDEK, L. *The Treatment of Insomnia with Luminol.*
6. KUWARIS, J. *Cases of Shotgun Injuries.*

No. 43. Oct. 24, 1912.

1. KASSOWITZ, M. *Facts and Theories in Their Significance in Natural Science and Medicine.*
2. FREUND, E., AND KUNNIER, G. *The Chemistry of Predilection Sites for Carcinoma.*
3. JULCHIERO, A. *Meiostagmin Reaction and Pregnancy.*
4. MONOILOFF, E. *Experimental Contributions to the Question of Idiosyncracy against Bromine and Quinine Salts as Phenomena of Hypersusceptibility.*
5. POLLOK, L. *The Diagnosis of Anthrax Sepsis from Lumbar Puncture.*
6. GEORGOPULOS, M. *Contribution to the Derivation and Significance of the Basophilic Erythrocyte Granules.*
7. HANDEK, M. *A Radiologically Diagnosticated Case of Traumatic Diaphragmatic Hernia.*

REVUE DE CHIRURGIE.

SEPTEMBER, 1912.

1. *BROCA, A., AND DESPLAS, B. *Late and Transitory Paralyses of the External Oculo-Motor in Fractures of the Cranium.*
2. QUÉNN, E. *Study on Poterior Marginal Fractures of the Tibia.*
3. WORMS, G., AND HAMAUT, A. *Fractures of the Neck of the Femur in Infancy and in Adolescence.* (To be continued.)
4. *DUCUING, J. *Total Articular Grafts in Man.* (Conclusion.)

1. The authors report three cases of delayed abducent paralysis following cranial trauma, and collect from the literature ten others.

4. At the conclusion of his long continued article Ducuing expresses his conviction that the functional results obtained by articular graft are most encouraging, and that when the indication presents, one should know how to employ this new therapeutic procedure. He collects reports of 19 cases from the literature, and appends an admirable alphabetic bibliography. [R. M. G.]

OCTOBER, 1912.

1. *DESMAREST, E. *The Treatment of Traumatic Separation of the Lower Epiphysis of the Femur.*
2. *BASSET, A. *Operative Surgical Treatment of Primary Epithelioma of the Clitoris.*
3. BARBOUTH, J. *Clinical and Histologic Study on the Aseptic Necrobrosis of Fibromyomata of the Uterus.*
4. WORMS, G., AND HAWANT, A. *Fractures of the Neck of the Femur in Infancy and in Childhood.* (Conclusion.)

1. Desmarest reports one case of his personal observation, and collects from the literature six others. He believes particularly in suture with the aid of plates.

2. Basset presents a series of excellent anatomic diagrams, illustrating his radical operation, and gives an excellent brief bibliography.

[R. M. G.]

ANNALES DE L'INSTITUT PASTEUR.

AUGUST 25, 1912.

1. *SALIMBENI, A. T., AND GERRY, L. *Contribution to the Pathological Anatomy of Old Age.*
2. WOLLMAN, E. *Research on the Amylolytic Bacteria of the Intestine.*
3. CESARI, E., AND VALLEAUX. *Study on the Bacillus of Schmort.*
4. LEGROUX, R. *Modifications in the Apparatus Free of Hydrogen for Cultivation of Anaerobes in Liquid Media.*
5. *PETTERSSON, A. *Mortality from Smallpox in Sweden from* 1776-1875.
6. VIALA, J. *Antirabic Vaccinations at the Pasteur Institute in* 1911.

1. Stimulated by Metchnikoff's theories upon old age, etc., these authors have undertaken a careful histological study of an old woman who died at the age of ninety-three. Having elliminated the lesions which could be traced to some acute cause, they found in different parts of the body and organs, sclerosis, mononuclear cell infiltration, hyoplasia of organs, cellular degenerations and calcification. They take up a discussion of the causes of these lesions and admit that the histology, which shows frequently only the end result, will not explain the original cause; but they think the histology combined by experimentation will clear the matter up. In addition to infectious disease and exogenous toxins they lay great stress upon Metchnikoff's theory of auto intoxication.

5. Making a statistical study of smallpox in Sweden before and after the introduction of vaccination Pettersson finds that the mortality was decreasing before the introduction of vaccination. The effect of vaccination upon children of a young age was very marked in diminishing the mortality. In people above twenty, however, the mortality increased which suggested that the effect of vaccination only lasted about fifteen or twenty years. The men appear not to have been as well protected by vaccination as the women. [C. F., Jr.]

IL POLICLINICO.

OCTOBER, 1912.

MEDICAL SECTION.

1. MORESCHI, C., AND GOLGI, A. *Results of Experiments on Anaphylaxis and Fever.*
2. SEGALE, M. *The Glycogen Content of the Liver and the Blood in Cholera.*
3. LONGO, A. *Immunity Tests in the Diagnosis and Treatment of Leischman's Disease of Infants.*
4. *MAZZOLANI, D. A. *The Epidemic of Smallpox at Fondi (Caserta).*
5. GASBARRINI, A. *The Cholera Epidemic in Apulia in* 1911.

4. Mazzolani gives an interesting account of the smallpox epidemic at Fondi, going into the epidemiology, treatment, prophylaxis and general management of the outbreak. He was impressed by the fact that vaccination gives only temporary immunity and therefore should be repeated every eight or ten years. One unsuccessful vaccination does not indicate that a person possesses natural immunity to variola. Control of vaccination by the govenment is absolutely necessary. [L. D. C.]

SURGICAL SECTION.

1. PEREZ, G. *So-called Bone Cysts.* (To be continued.)
2. MARCORA, F. *A Case of Malignant Chorio-Epithelioma in Man.*
3. CŒIASSERIM, A. *Ureteral Homotransplants.*
4. LEOTTA, N. *Hyperplastic Hypophysary Struma with Acromegaly, a Contribution to the Pathology and Surgery of Hypophysary Tumors.* (Conclusion.)

Correspondence.

HEMORRHAGE IN THE NEWBORN.

Mr. Editor: The following case may interest those especially interested in the treatment of Hemorrhagic Disease in Infants.

Baby L. was born May 28, 1910; parents healthy; normal labor. Child seemed perfectly natural in every way at birth; weight, 7 lbs., 14 oz. The morning of May 30th began to have hemorrhages from the bowels. These occurred in rapid succession at first, three within fifteen minutes, and very profuse, the child quickly becoming exsanguinated. Hemorrhages numbered 8 or 9; vomited slimy brown fluid, no blood. Afternoon of same day one tube of rabbit serum was injected, and during the night bleeding was much less. A second tube of serum was injected on May 31st, after which there was no more bleeding, the stools soon becoming normal. The baby looked bad, extremely pale, and lifeless, but soon began to gain, and nursed regularly. June 2d weighed 5 lbs., a loss of 2 lbs. 14 oz. June 21st had gained 1 lb. 4 oz. and looked and seemed very well.

WM. O. HUNT, M.D.

THE ORIGIN OF LIFE.

BOSTON, Oct. 22, 1912.

Mr. Editor: The attention of many of your readers has doubtless been attracted to a remarkable address[1] by a well-known and truly great physiologist, Professor Schäfer of London, on "The Nature, Origin, and Maintenance of Life."

That part of Professor Schäfer's opinion which could have been counted on as sure to excite at once fierce antagonism and exultant approval is briefly given in the sentence,

"He reminds us that the elements composing living matter are, after all, few. 'The combination of these elements into a colloidal compound represents the chemical basis of life; and when the chemist succeeds in building up this compound it will without doubt be found to exhibit the phenomena which we are in the habit of associating with the term *life*.'"[2]

Of the biological and chemical arguments on which this view is based, I do not care to speak; nor could I do so with authority. Let us assume them valid. 'Vitalists' or 'evolutionists' (in the deterministic sense), 'materialists' or 'idealists,' 'agnostics' or 'deists,' or, however we may classify ourselves, we should all receive and welcome the *demonstrations* of natural science with our arms open. It is, however, a different question how we should look upon the *inferences* of natural science. Of such inferences there are here two sorts that may be dealt with, direct and indirect. One of the direct inferences is that chemists may learn to do again, at will, the work of the creation of the world of human life from chaos. This conclusion, too, let us, for the sake of argument, accept.

The most important indirect inference, perhaps, is that through this demonstration a signal triumph will have been won for those who maintain, or in their hearts believe, that life, in the sense of a self-active energy (of which the best representative is mind), and the human mind itself through the means of which these wonderful discoveries are to be made, are nothing but elaborated chemical processes,[3] a kind of outgrowth of something simpler, a secondary manifestation; and that evolution, from 'material' atoms and forces up, as ordinarily described, is the whole of the real evolution, back of which is nothing but some sort of repetition of itself.

Against this inference, which is, indeed, not definitely drawn by Professor Schäfer, but which permeates the thought of naturalists almost as universally as the 'ether' is supposed to penetrate all existing things, I wish to protest, with all my force, —although in place of volumes of convincing arguments I can but offer a few meagre sentences.

In the first place, is it not true that these wonderful and startling demonstrations (assuming them to show all that is hoped for from them) really help us no whit more than does each process of digestion, toward the dethroning of the mind or the setting-aside of vital self-activity as the fundamental principle of existence? It may indeed be shown that the principle, "omne vivum ex ovo or ex vivo," is not thorough-going. But had not the transformation of bread to thought already pointed to the same conclusion?

For the stomach of the man, and the body of the ameba, and the substance of each living cell, and for the apparently complex processes of fertilization and reproduction, it may now be shown that apparently new and simpler-seeming conditions may suffice. But such a demonstration should surely only simplify and universalize our conception of the nature and whereabouts of 'life,' and increase our marvel at the degree to which the vitalizing power, best seen in mind, is visible, instead of leading us to assume its universal absence.

In the next place, it seems to be often overlooked that—in spite of the long since disproved arguments of Kant and Spencer—nothing for us is real but what *we* can know, or must assume as true. The 'laws' of nature, discovered by us, must owe their existence and value for us to the action and existence of our minds, and can exist for us only on the background of our minds, or, strictly speaking, as a partial expression of them. The investigation of nature is a journey of discovery into our own thoughts and feelings, and can be nothing else; physics can come completely to its rights only through metaphysics.

How then can we discover principles that transcend mind and render it unnecessary, or secondary? That would be like inventing a logic which should transcend thought; it would be to elevate ourselves by our own boot-straps.

The experiments of which Professor Schäfer speaks are then indeed of marvellous interest; but instead of teaching us to disparage the primary significance of the mind of the great scientist, and to deny the existence of a vitalistic principle which encloses in one unity the mind and our minds with all the phenomena which they can learn to see and know, they should teach us to be ever keener in detecting the evidences of life where we had falsely, and with narrow insight, assumed it to be absent. They should teach us to trace the analogy—biologically distant, actually near—between the creative activity of thought and the transmission of life from one generation to the next. The chain that unites these two processes, long as it may seem, is built up, in fact, of clearly demonstrable links. The material universe was (logically) antedated, and is still constantly permeated by a form of self-active energy which, in the form of our thinking processes, enables us to recognize and appreciate, under ever new conditions, other vital phenomena akin to these. Phenomena not akin to our thinking-processes we cannot know, and have no right or reason to assume.

JAMES J. PUTNAM, M.D.

[1] See notices in the BOSTON MEDICAL AND SURGICAL JOURNAL, September 12, 1912; in the Journal of the American Medical Association, September 28, 1912, and elsewhere.

[2] Journal of the American Medical Association, September 28, 1912, p. 1197.

[3] Cf. Jacques Loeb's various publications on this topic.

Miscellany.

BOOKS AND PAMPHLETS RECEIVED.

Remarks Upon Psychogenetic Convulsions and Genuine Epilepsy by L. Pierce Clark, M.D. New York, N. Y. Reprint. 1912.

A Study of the Significance of the Habit-Movements in Mental Defectives by L. Pierce Clark, M. D., and Charles E. Atwood, M.D., New York, N. Y. Reprint. 1912

APPOINTMENTS.

DR. ANTHONY BASSLER has been recently appointed clinical professor of medicine in the New York Polliclinic Medical School and Hospital.

DR. CARL J. HEDIN, for the past four years assistant superintendent of the Maine Hospital for the Insane, at Augusta, has been recently appointed superintendent of the Maine State Home for the Feeble-minded.

RECENT DEATHS.

ARTHUR TRACY CABOT, M.D., S.M.M.S., died at Boston, Nov. 4, 1912, aged 60 years. An obituary notice will appear in an early forthcoming issue.

DR. DAVID H. AGAN of New York died on November 6, at the age of sixty-five years. He was a native of Troy, N. Y., and was graduated from Bellevue Hospital Medical College in 1879. He was prominent in the Masonic order.

DR. HENRY MICHAEL CLIFFORD, who died of cardiac disease last week in Charlestown, Mass., was born at Lewiston, Me. He graduated from the Harvard Dental School in 1886, and since that time had practised his profession continuously in Charlestown.

DR. GEORGE B. ENGLAND, formerly a practising dentist for 10 years in Quincy, Mass., died last week at Charlton, Mass.

DR. JOHN WILLIAM MALLET, who died last week at Charlottesville, Va., was born in Dublin, Ireland, on Oct. 10, 1832. He received the degree of B.A. from Trinity College, Dublin, in 1853, and in the same year emigrated to the United States. He subsequently obtained the degree of M.D. from the University of Louisiana, where he was for a time professor of chemistry. At the time of his death, he was emeritus professor of applied chemistry at the University of Virginia. He was twice married.

DR. J. E. MONROE, of Orange, Mass., who died at Worcester, Mass., last week, was a native of New Hampshire. He graduated from the Cleveland Homeopathic Medical School in 1893, and after practising his profession in Pennsylvania for a short time, finally settled at Orange. He is survived by his widow, two sons, and one daughter.

DR. HERMANN MUNK, who died at Berlin, on Oct. 1, was born in Posen, Germany, on Feb. 3, 1839. He was distinguished as a physiologist, particularly for his original researches on the electric phenomena of nerves and muscles and on the functions of the cerebral cortex.

DR. ROBERT MAITLAND O'REILLY, U.S.A., who died of uremia on Nov. 3 at Washington, D. C., was born in Philadelphia on Jan. 14, 1845. He was surgeon-general from 1902 to 1909.

DR. WILLIAM FREDERICK REX, of Brooklyn, N. Y., died on November 1. He was graduated from the Long Island College Hospital in 1905, and had devoted special attention to diseases of the rectum. At the time of his death he was rectal surgeon to the Williamsburg Hospital and to the Bushwick and East Brooklyn Dispensaries.

DR. HENRY GEORGE SMALL, who died on Nov. 8 in Brooklyn, N. Y., was born at Exeter, Me., in 1852, the son of a physician. He graduated in 1874 from the College of Physicians and Surgeons, New York. He had practised his profession in Brooklyn since 1874, and was a member of the King's County Medical Society. He is survived by his widow.

DR. WALTER HENRY WHITE, who died on Nov. 5, at Cambridge, Mass., was born in 1846. He graduated from Boston University Medical School in 1882, and since that time had practised his profession in this city. He was a member of the American, of the New England and of the French Electro-Therapeutic Associations, of the American Association for the Advancement of Science, of the American Medical Association, and a Fellow of The Massachusetts Medical Society.

DR. MARIETTA H. C. WOODRUFF, who died last week at Boonton, N. J., was born in that city in 1837. She was graduated from the New York Medical College for Women in 1874, and subsequently practised her profession in northern New Jersey. She was a widow.

SOCIETY NOTICE.

There will be a meeting of the N. E. Branch of the American Urological Association in conjunction with the Hartford Medical Society at the Hunt Memorial Building, 38 Prospect St., Hartford, Conn., on Monday, Nov. 18, 1912, at 8.45 p. m.

Program: Presentation of patients—Instruments, specimens, and report of cases.

Symposium on Renal and Vesical Neoplasms. "The symptomatology of Renal Tumors." Dr. J. D. Barney, Boston. "Clinical Observations on Bladder Tumors." Dr. A. L. Chute, Boston. "Observations on Recent Cases of Bladder Tumors at the Massachusetts General Hospital, with Special Reference to Operative Technique." Dr. R. F. O'Neil, Boston. "The Value of High Frequency Cauterization in the Treatment of Bladder Tumors." Dr. H. Binney, Boston. Discussion by Drs. E. L. Keyes, Jr., and Edwin Beer of New York, Dr. H. Cabot, Dr. J. W. Keefe, Dr. O. C. Smith, and others.

R. F. O'NEIL, M.D., *Secretary.*

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, Nov. 2, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	8	3
Chicago	633	171	Waltham	6	—
Philadelphia	—	—	Brookline	6	1
St. Louis	—	—	Chicopee	3	0
Baltimore	—	—	Gloucester	6	1
Cleveland	—	—	Medford	7	—
Buffalo	—	—	North Adams	0	5
Pittsburgh	—	—	Northampton	7	0
Cincinnati	—	—	Beverly	6	—
Milwaukee	—	—	Revere	7	1
Washington	—	—	Leominster	3	2
Providence	—	—	Attleboro	1	0
Boston	197	46	Westfield	4	1
Worcester	31	2	Peabody	—	—
Fall River	40	18	Melrose	1	—
Lowell	27	11	Woburn	2	1
Cambridge	27	4	Newburyport	3	—
New Bedford	23	5	Gardner	5	0
Lynn	12	2	Marlboro	3	0
Springfield	22	6	Clinton	3	1
Lawrence	4	5	Milford	—	—
Somerville	16	2	Adams	5	3
Holyoke	13	3	Framingham	—	—
Brockton	10	2	Weymouth	—	—
Malden	6	2	Watertown	—	—
Haverhill	6	1	Southbridge	2	1
Salem	15	4	Plymouth	—	—
Newton	9	2	Webster	1	0
Fitchburg	6	3	Methuen	—	—
Taunton	14	4	Wakefield	2	—
Everett	9	1	Arlington	1	—
Quincy	—	—	Greenfield	4	1
Chelsea	13	1	Winthrop	4	1

Original Articles.

SYPHILIS: THE STORY OF ITS TREATMENT, OLD AND NEW.*

BY ANDREW F. DOWNING, M.D., CAMBRIDGE, MASS.

"Upon few pictures in literature do we dwell with greater pleasure," says Osler,[1] "than upon that of Catullus returning to his home near Verona, wearied with the pleasures of the Capital, sick at heart after the death of his much beloved brother, and still, we may fancy, aching with the pangs of misprised love; but at the sight of 'Pæninsularum Sirmio, insularumque ocella,' he breaks into joyful song and all his cares vanish. Fifteen centuries later another 'Bard of Sirmio' sang the joys of the Lago di Garda, 'mid Caphian hills,' and while we cannot claim for Fracastorius a place beside his immortal townsman, he occupies a distinguished position in our annals as the author of the most successful medical poem ever written, and as the man from whom we date our first accurate knowledge of the processes of infection and contagion."

Such is the gentle tribute of the greatest medical man of our time to the greatest of another, and such is a graceful introduction to that charming old Italian physician of the sixteenth century who originated the word syphilis.[2] Hieronymus Fracastorius, finished scholar and most illustrious physician of his time, was born in Verona in 1483, made a brilliant course at the great University of Padua,[3] and afterwards besides practicing the profession of medicine, devoted much time to poetry, astronomy, cosmography, and natural philosophy. The age in which he lived, writes a biographer, saw nothing equal to his learning but his honesty. To him we owe a description of syphilis, written in 1546,[4] which in its essentials and accuracy of detail remained unsurpassed until the middle of the nineteenth century. The honor in which he was held by the distinguished men of his time can best be understood by the fact that he was appointed by Pope Paul III as physician to that famous Council of Trent which sat from 1545 to 1547. It was upon his advice that the Council, owing to a contagious malady that broke out in Trent, was transferred to Bologna during the latter part of the session. His poem, "Syphilis sive Morbus Gallicus," published in 1630 and dedicated to his life-long friend, Cardinal Bembo, then secretary to Pope Leo X and afterwards made a Prince of the Church by Pope Paul III, pictures his views on the origin, symptomatology and cure of a new disease which startled Europe by its appearance at the end of the fifteenth century.

Syphilis, a shepherd, one of the characters of the poem, which by the way possesses high literary merit, kept watch over the flocks of King Alcithous, and one year, when the drought was so extreme that the cattle perished for want of water, Syphilis was so incensed that he blasphemed the Sun-God and destroyed his altars, erecting some instead in honor of the King, his master. But the Sun-God, enraged, darted forth infection on air, earth and stream, and poor Syphilis became the first victim of this new disease.

"Syphilus, ostendit turpes per corpus achores:
Insomnes primus noctes, convulsaque membra
Sensit, et a primo traxit cognomina morbus."
(Book III)

"He first wore buboes dreadful to the sight;[5]
First felt strange pains and sleepless passed the night;
From him the malady received its name."

Neither Hippocrates nor Galen nor any other ancient writer had given a description or dogmatic definition of the supposed new plague, and not until the lifetime of Fracastorius, including the last part of the fifteenth and the first half of the sixteenth centuries, did men emerge from entire ignorance to a complete knowledge of the disease, when a great epidemic of syphilis swept over Europe from 1494 onward. To such an extent did it rage through Spain in 1494 that hardly a family was free from it. In Seville the number of cases became so great that a special hospital was opened there in 1497. During 1494, also, the whole of Italy was affected and the disease spread rapidly from town to town. In 1495 Germany and Switzerland had serious outbreaks; Holland and Greece suffered in 1496; England and Scotland felt its heavy hand in 1497; and Russia and Hungary were victims in 1499. In 1496 a decree of the Parliament of Paris required all infected persons to leave the city within twenty-four hours.

There was much speculation at the time as to the origin of the disease. Some insisted that it came from America, brought over by the sailors of Columbus in the spring of 1493 on their return from the discovery of the New World. Fracastorius and others did not accept the American theory, because the spread of the disease was too rapid to allow the assumption that it was passed from person to person from Columbus' sailors over the whole of Europe. On the other hand, there were those who held to the belief that it could be traced to the French and Spanish campaigns in Northern Italy in 1494 and 1495. In favor of this view was the fact that the army of Charles VIII of France, consisting of mercenaries from many countries, including Spain and Switzerland, together with hordes of camp-followers, appears to have been attended not so much with resistance as with scenes of the wildest debauchery, as it passed through the towns of Northern Italy. In all these places there broke out epidemics of syphilis, which were stated by contemporary observers to be due to the French army—hence the name French Pox. At Naples Charles entered upon such a period of misgovernment and debauch that the greater part of his army, at first

* Read before the Pasteur Club of Boston, October 1, 1912.

celebrated as the most completely organized force operating under a single command, had to retire in disorder, with the health of the men undermined by syphilis. After the retreat the army disbanded, and the Spanish, Germans, Swiss and French scattered to their particular countries, carrying with them a contagion far more destructive and demoralizing than all the implements of war. Thus did this dread disease, in a form markedly virulent, visit the world; and in imagination we may depict its horrors as it reaped in the innocent with the guilty, in an age when the sanitary engineer and the public health board could hardly be said to flourish.

Whatever was the real cause of this remarkable epidemic, about which so much was written at the time, it would be absurd to say that this was the debut of syphilis in the civilized world. The old writers all speak of certain growths or ulcerations of the genitalia without giving us any accurate description. We know that a disease called yaws, resembling syphilis in some respects, which attacked chiefly the negro, was pointed out by the Arabian physicians as early as the tenth century. This disease at the present time is interesting from the fact that it is caused by an organism identical with the spirochita pallida and gives a positive Wassermann reaction. Celsus, living in the middle of the first century before Christ, tells of certain affections of the genital organs, and adds that in phimosis, after having overcome the resistance of the prepuce, there are seen, when it is drawn back, ulcers situated either on its inner surface, or on the glans, or on the penis beyond the glans. Aretæus, living in the second century after Christ, speaks of a disease in which the uvula is destroyed to the bones of the palate, and the fauces to the root of the tongue and epiglottis. Among the old Latin poets we find plenty of evidence of contagious venereal disease in Rome. Martial[8] in one of his epigrams mentions a certain family in which the wife, husband, daughter, son-in-law and grandson were afflicted with venereal sores. Even the steward, he says, and the farm bailiff, the sturdy digger and the plowman were not free from the disgusting ulcers. Many are the references to venereal disease in the days when Imperial Rome had fallen to her low state of immorality, and we cannot but believe that the ancient ancestors of the spirochete were highly cultured and well developed and nourished, when Horace in the Sixth Ode of the Third Book pointed out to the Romans of his time that their age, prolific in sin, was the first to destroy the sanctity of marriage and pollute the offspring; and when the sharp tongued Juvenal in the immortal Tenth Satire told them that the greatest boon for which they could pray to the gods was

"Mens sana in corpore sano."

These are only a few historical facts concerning our early knowledge of a venereal disease which undoubtedly existed even in ancient times, and on leaving this fascinating part of our subject, I might mention that here in Boston as early as 1646, sixteen years after the founding of the city, the people were scandalized by an outbreak of syphilis. John Winthrop,[7] in his History of New England, tells us that "one of the town. . . having gone cooper in a ship into . . . at his return his wife was infected with lues venerea." Before the disease was recognized, through the fortunate arrival of a young physician, sixteen men, women and children became infected.

During the first few years of the epidemic in the fifteenth century the disease was untreated by physicians because it was considered disgraceful to occupy oneself with a new malady that could not be treated according to the rules of art. Then, as now, it was treated by quacks and impostors of all kinds, who employed so many dangerous remedies that medical men, ashamed of neglecting their duty, began to undertake the treatment of the scourge. From that period began the use of mercury, introduced into therapeutics by the Arabs, but used only externally for lice, itch, impetigo and other skin troubles. Fracastorius, after setting down certain rules as to diet, says in his poem:

"Argento melius persolvunt omnia vivo
Pars major: miranda etenim vis insita in illo est."
(Book II)

"The greater part and with success more sure
By mercury perform the happy cure;
A wondrous virtue in that mineral lies."

The lard of swine he used for a vehicle mixed with larch gum and turpentine. The whole body is to be smeared except the head and breast, and then the patient is to sweat profusely under thick bed clothing. The course is to be repeated for ten days until:

".....liquefacta mali excrementa videbis
Assidue sputo immundo fluitare per ora
Et largum ante pedes tabi mirabere flumen."
(Book II)

"The mass of humours now dissolved within
To purge themselves by spittle shall begin."

Mercury soon fell into disfavor on account of its abuse. The remedy became worse than the disease and in 1517 infusions of guiacum wood became popular; but this in turn was displaced by cinchona, sarsaparilla and sassafras. In 1538 mercurial inunctions came back into favor and about the same time physicians began to use mercury internally in the form of the red precipitate. Thus was begun the mercurial treatment of syphilis, which, notwithstanding the many attacks made upon its use, has continued to the present time. In 1821 tincture of iodine was first used locally on specific ulcers of the throat with good results, and in 1824 it was employed internally in doses of from twenty to forty drops. Lugol in 1831 published a series of

tertiary cases cured by this method alone and iodine was permanently established as an antisyphilitic agent.

To Dr. Wallace of Dublin[8] belongs the honor of first using iodide of potash, of fixing its doses, and of pointing out its indications. His experiments, begun in 1832, led to the publication of his results in the form of lectures at a Dublin hospital in 1836. One hundred and thirty-nine patients were observed, of whom six were affected with iritis, six with disease of the testicle, ten with various diseases of the bones and joints, ninety-seven with cutaneous syphilides, and twenty with lesions of the mucous membrane of the mouth, nose and throat. Lastly, three pregnant women were also subjected to the same treatment for the purpose of preserving the fœtus from syphilitic contagion. The preparation employed, mixtura *hydriodidis potassae*, contained eight parts of iodide of potash to two hundred and fifty parts of distilled water. Adults took a tablespoon of this mixture four times a day, or about thirty grains.

Such is an important chapter in the history of medicine so much neglected by the American student, yet having, as Walsh[9] the scholarly dean of Fordham says, "its valuable lessons for all generations, but especially for a generation so occupied with itself that it does not properly consider the claims of the past to recognition for fine work accomplished." Almost three hundred and fifty years had passed with mercury as the only remedy, and it is now almost another century since iodide of potash was added. It is true that the different forms of mercury introduced in the course of time offered some variety of treatment and that intramuscular injection was added; but inunction, the first means of giving mercury, is no better in our day than in the day of Fracastorius. The dosage of potassium iodide was increased as it grew in popularity, but beyond this, we of the present generation were content to follow in the footsteps of men long since dead, until Schaudinn demonstrated the spirochita pallida in 1905, Wassermann, the reaction bearing his name in 1906, and Ehrlich gave salvarsan to the world in 1910.

Ehrlich, while still a student studying pharmacology under Heubel, believed that it would be possible to obtain a chemical substance which would have a greater affinity for the protoplasm of the invading organism than for the protoplasm of the host. It had long been known that arsenic sometimes produced a certain effect in syphilis, but it was of little moment, and only now and then had it been used with some measure of success in cases where treatment by mercury had failed. A number of arsenical compounds, including the sodium salt of dimethylarsenic acid, the so called cacodylate of soda and another substance, atoxyl, were tried out, but found to be very toxic and much too dangerous for human therapy. Moreover, their action on syphilis was not efficient. During the course of years, out of hundreds of substances experimented with on animals, only a few were found to be available. His 606, the culmination of this first series of experiments, was tried out by Hata on mice and rabbits with relapsing fever and found to be effective. Later it was tried on rabbits inoculated with syphilis and the results were truly remarkable. Salvarsan proved to be a very stable compound acting as such, rather than through decomposition products, and that is why relatively much greater quantities of arsenic may be given in this form than as cacodylate of sodium or atoxyl.

At the conclusion of the experiments on animals, Ehrlich had the preparation tested by Professor Alt to determine its toxic properties in man. On September 10, 1909, Alt replied that he would be honored and delighted to test the substance in conjunction with his assistant, Hoppe. After watching the effect on sheep and dogs, Hoppe and Dr. Wittneben offered themselves to be injected. They each received one-tenth of a gram intramuscularly and suffered only some local pain, not very severe and lasting but a few days. On the basis of this experiment a number of robust syphilitic idiots were injected without untoward results. The dose used in these cases was three-tenths of a gram, and shortly after, the Wassermann reaction was found absent in some, markedly decreased in others, and only appreciably decreased in more. It was found also that the elimination of salvarsan still continued on the tenth day. On finding that three-tenths of a gram was a safe and efficient dose, Alt requested Dr. Schreiber of Magdeburg to use the preparation in cases of recent syphilis untreated by mercury, and the latter was able to report astonishing results in the cases of twenty-seven patients. Initial lesions decreased in size within a few days and the infiltration also generally disappeared; the maculo-papular eruption, moist and ulcerating in character, rapidly became pale or dry, leaving only some flat pigment spots. Ulcerations of the labia became smooth and healed within a few days. Extensive condylomata of the anus and vagina soon became pale and smooth, and in several very severe cases disappeared within four weeks without leaving a trace. Also in one case a very large and obstinate tertiary ulcer of the thigh became almost entirely cicatrized within less than three weeks. The most rapid results were observed in the otherwise very obstinate cases of specific angina with slimy false membrane. In four out of the twenty-seven patients the Wassermann reaction disappeared.

These results were first announced on March 3, 1910, to the Medical Society of Magdeburg. Hoppe and Schreiber later reported to the German Congress for Internal Medicine similar results in one hundred cases observed by them. In twenty-five patients with a positive Wassermann reaction it became negative in twenty-three cases within forty days or more *i.e.* in ninety-two per cent. At the same time Julius

Iversen announced from Russia the results of the treatment of recurring fever in man.

Immediately after these early publications Ehrlich began to distribute free many thousands of doses of "606" to syphilologists in all parts of the world. This distribution was not so much for testing the therapeutic results as to exclude as far as possible the occurrence of any evil effects, in particular on the eyes. The determination of this question was essential before the substance could be put upon the market, in view of the disasters which had followed the use of other arsenical compounds. Many of the results following Ehrlich's distribution of "606" were announced on September 20, 1910. The main facts were then known and it remained chiefly to observe the occurrence of relapses. The great German had now, after years of patient waiting and experimentation, the results on many thousands of cases, and in December, 1910, "606" was placed upon the market under the name of "Salvarsan."

Unfortunately, many physicians travelling through Germany and France in the summer of 1910 saw the experimental injections of this preparation with some of its immediate wonderful results. Without waiting for the final word from the great men who produced it, they returned to their respective countries and began to tell that syphilis was to be destroyed in one fell swoop by a single injection of "606." Therefore, when the rank and file of the medical profession were able to buy it in the market there were many disappointments because a number of recurrences were observed. As a matter of fact, nothing of importance has been discovered about salvarsan which was not known to Professor Ehrlich long before his discovery became a purchasable product.

The clinical effects of "606" are so well known that any detailed account is unnecessary and any publication of a small number of cases makes but a sorry comparison when set beside the work of those men to whom we owe so much. Wechselmann[10] of Berlin, to whom Ehrlich entrusted the remedy for experiment on an extensive scale, related his experiences in fourteen hundred cases before December, 1910, and in speaking of Wechselmann's work Ehrlich himself says:[11]

"If I am to limit myself only to the most important of Wechselmann's personal observations, which are so clearly stated, I desire to say that he was the first to point out the excellent effects of salvarsan, particularly in those cases of malignant syphilis where the former methods of treatment often failed after years of medication. Wechselmann has also shown that in just such cases it is possible without any particular risk to repeat the injection and thereby attack the cause of the disease a second time, when we have not been able to master it at one stroke.

"Furthermore, Wechselmann's explanation of the causation of local recurrence after treatment with salvarsan appears to me to be of particular importance. He assumes that it is due to spirochetal foci, which cannot be attacked by the remedy on account of an imperfect vascular supply. I believe that this opinion will also readily explain the particularly disagreeable surprise caused by the recurrences recently observed in nerve-trunks. Similar symptoms have hitherto been observed only in patients where the disease was in the early period of the secondary stage. It is thus quite clear that in this stage of the disease, in which the entire organism is saturated with spirochetes, individual foci may escape sterilization, especially when they are localized in parts either without blood-vessels or poorly vascularized; subsequently they may flare up, as a localized recurrence unless they are overcome by a reinjection, which hits the mark like a sure shot, so to speak (Fangschuss), permitting of no escape.

"According to the more recent experiences Wechselmann's explanation seems to me very plausible. There is no ground for declaring that a toxic irritation caused by the preparation is responsible for this phenomenon, for numerous experiences have already demonstrated the fact that salvarsan has no neurotropic effect. In this respect, too, we have to thank Wechselmann for having satisfactorily shown that even syphilitic affections of the optic nerve and retinal atrophies may be treated without causing injury. This could hardly be done if salvarsan really had a toxic effect on the nerve terminations." This last statement of Ehrlich's seems to cover the facts concerning the so-called "neuro-rezidive." They are not due to arsenical poisoning and are cured by further "606" treatment.

The effect of salvarsan on the Wassermann reaction deserves some attention. According to Wechselmann it is of great importance to know this, as well as the strength of the reaction, the moment it begins. His assistant, Dr. Lange, examined fifty-one cases once or twice every week observing them for a sufficient length of time and found that the reaction became negative in the majority of cases. A period of four to five weeks after an injection of salvarsan was considered sufficient for observation, as most of the cases had been rendered negative by that time. Furthermore, the interesting fact was revealed that the period of time in which the reaction became negative generally depended less upon the clinical severity of the case than upon the incipient strength of the reaction before the injection was administered. The cases with a marked positive reaction required an average of four to five weeks, while cases with a faintly positive reaction took only about eight days. In cases with an intermediate strength of reaction the time would vary between these extremes. The occurrence of the negative reaction varies between one and seven weeks.

He reports five cases in which the reaction was negative preceding the injection, but gradually increased in all of them until they

were positive in various degrees. Subsequently, during a long period of observation, there was a decrease towards a negative reaction. He explains these phenomena in the fact that the spirochetes are disintegrated by the injection and thus the substances necessary for the manifestation of the Wassermann reaction find their way into the blood. In this manner we are offered a new method of discovering a veiled Wassermann reaction. This is probably the explanation of the so-called provocatory salvarsan test described by Gennerich by which latent or uncured syphilis is revealed.

The question of using mercury in conjunction with salvarsan was taken up by a number of observers, and it was agreed that since mercury also had the power to diminish or make negative the Wassermann reaction, the use of these two drugs was the best possible treatment. There can be no doubt that mercury has cured syphilis. Wechselmann instances two cases which were treated with a single course of inunctions twenty-four and eighteen years ago, respectively. There has never been any recurrence, and their wives and children are healthy and show a negative Wassermann reaction. The question of what is the best form of mercury to use is debatable. Some men prefer to use the insoluble compounds in intramuscular injection, while others prefer a primary course of inunctions followed by the soluble compounds by mouth. It is possible that many of the adherents of the intramuscular method have never given the method by mouth a fair trial and vice versa; and there is no doubt that often one compound of mercury or method of treatment fails where another is successful. Lately there has been some talk about the calomel treatment combined with salvarsan, and the statement is made that it is the only form of mercurial treatment that will accomplish its purpose. This consists of the intramuscular application of the various insoluble compounds of mercury such, for example, as calomel and oleum cinereum (blue ointment diluted with olive oil). Whether or not there is evidence enough to prove this contention is not for me to say.

A word concerning tabes will not be out of place in considering the good effects of salvarsan. It is self-evident that degenerated portions of the central nervous system cannot be replaced, but when we consider that "606" brings about a speedy cure of foci in skin affections, which failed to respond after years of treatment with mercury, the use of the new remedy in tabes appears to be perfectly justifiable. If, for example, in this disease of the central nervous system, even very small foci can be made to recede, the advantage to the patient must be very great, as the most important nerve tracts lie in close proximity in a very limited space. In fact, it is probable that the new treatment will be able to exert a favorable influence in many directions. The majority of cases declare that they have materially improved. Serious intercostal neuralgia and lancinating pains that required narcotics have been made to disappear or become less frequent and less severe. The same is true of gastric crises. Lost sexual power has been restored. Almost without exception ataxia is modified materially. Of course we shall have to wait until it has been demonstrated that the success is a permanent one before it may be safely concluded that the remedy stops the progress of the disease.

When and how often we may repeat succeeding doses of salvarsan is another question on which the last word has not yet been spoken. Unfortunately, syphilitics in many cases become so expert, in their own opinion, in the knowledge of their disease that they determine their course of treatment. Because they show no physical signs and feel perfectly well they assume that they need no attention, and they smile when the physician tells them that the organisms of syphilis are probably floating around in the blood stream. Such a state of affairs is bad for patient and physician, because on the one hand the patient is apt to say later, when symptoms do appear, that he was not treated properly; and, on the other hand, the physician is apt to be discouraged when he is powerless, through no fault of his, to use the best of the present day methods of treatment. Broadly speaking, the first injection of "606" is not sufficient and the subsequent injections should be determined by the presence or absence of the Wassermann reaction. The progres sof syphilis is uncertain and at times even treacherous. Therfore, no one who sees a primary sore for the first time can predict the course that will be taken by the disease. If symptoms are present we ought to use the new remedy; but on the other hand, there is no reason for its blind use intermittently when there are no symptoms, inasmuch as, with a thorough clinical and serological control, an approaching danger to the patient can be recognized and combated in due time. This brings a positive Wassermann reaction under the head of syphilitic symptoms that require treatment.

The best means of giving salvarsan is intravenously. The first cases were injected intramuscularly, but before the preparation was put upon the market Ehrlich himself advised the intravenous method. There are very few contraindications to its use. Only cases with cardiac disease and bleeders are to be avoided. Pregnancy is not a contra-indication. The fact that tuberculosis is not a contra-indication is very important when we consider the deleterious effect of mercury in the joint presence of tuberculosis and syphilis.

Within the last few months a new preparation of Ehrlich's, neo-salvarsan, number 914 in the series, has appeared. This is from five to ten times more active than the earlier preparation, is non-irritating, falls into neutral solution with sterile water very easily, and may be given intravenously every second day in doses up to one and one-half grams. Another late discov-

ery is the luetin test of Noguchi. This is a cutaneous test for syphilis similar to the cutaneous test for tuberculosis. The material used is prepared by grinding up pure agar cultures of the spirocheta pallida with pure cultures of the same organism in bouillon. It is then heated to 60° centigrade and one-half per cent. carbolic acid added for the purpose of sterilization. The test is always practically positive in tertiary syphilis, while secondary cases rarely give the reaction. Here, then, is another guide for the use of salvarsan.

Salvarsan, or rather its successor, neo-salvarsan, must be ranked at present as our most powerful anti-syphilitic agent. Its quick action where mercury has failed, especially in those cases that are dangerous to the community, must soon commend it to health authorities for the public good. We are not yet ready to say that it will entirely displace mercury, since our most conservative men use them in conjunction. Like immorality, syphilis will probably always be with us and its extermination must necessarily be a dream. With the old writer who put his trust in Heaven, we too must believe that its extinction is a task for the Almighty. "Itaque hanc luem nisi Deus optimus maximus sua clementia ipse extinguet, aut effrenatum hominum libidinem temperet, nunquam extinctum iri, sed fore humano generi comitem et immortalem crediderim."[12] As to its cure we of the medical profession have every reason to be optimistic, for it looks as if Ehrlich in scoring an achievement of the highest scientific character has also scored a magnificent victory of peace that might well make the shade of charming old Fracastorius envious of the happy age in which we live.

[1] Fracastorious, a paper read at Charak Club, 1904.

[2] Probably from the Greek σῦς swine and φίλος loving. Hence swine-lover. Other authorities argue in favor of σύμ-φιλος giving the idea of loving together. Still others say that its derivation is from σιφλός or σισδλός meaning maimed or impotent. Fracastorius never gave his reasons for the word.

[3] Padua. This university was founded in 1222.

[4] De contagionibus 1546.

[5] English translation by Nahum Tate 1686.

[6] Epigrams. Book vii, 71.

[7] Winthrop's New England. Edited by Savage. Vol. ii, pp. 257-58.

[8] Lancet, Vol. i, March, 1836.

[9] Walsh: "The Medical Profession for Six Thousand Years." Commencement address at Fordham Medical School, June, 1909.

[10] Wechselmann has now given over 12,000 injections. In fact he has stopped counting them.

[11] In introduction to "The Treatment of Syphilis with Salvarsan," by Wechselmann. Berlin, 1911.

[12] Jean Fernel, 1497-1558. De Luis Venereae Curatione Perfectissima Liber. Caput II Luis Venereae Origo. (Concluding sentences of chapter.)

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DIFFICULTIES IN INTERPRETING THE SIGNIFICANCE OF REGIONAL MUSCLE RIGIDITY AND DEGENERATION ABOUT THE THORAX: DIAGNOSTIC LIMITATIONS.

BY J. L. POMEROY, M.D., MONROVIA, CAL.

THE difficulties in interpreting the significance of muscle spasm and degeneration in intrathoracic disease fall under several headings. First, we have shown* that there is a complex mechanism in its causation, that we have the possibility of neuritis with localized conditions resulting from this lesion, a mechanical influence exerted upon the nerves in the mediastinum, and finally, it is to be remembered that the segmental symptoms from the lungs are not specific for lungs only, but may be brought into play by aortic, cardiac, pericardial, and changes in other structures in the thorax.

There cannot be any doubt that bronchial gland enlargement may give the same picture from a reflex standpoint as pulmonary tuberculosis. In this connection the following observations are of interest: Honeij in an examination of 620 patients by x-ray, found 147 showed the presence of enlarged glands in the mediastinum or at the root of the lung. The majority were referred to the clinic for suspected tuberculosis of the lungs. In only two of the 147 cases was bronchial gland enlargement suspected from a physical examination. In 100 cases, 15 showed no tuberculosis, and of 24 diagnosed as tuberculosis, 17 proved negative. In these 32 negative cases the glands were shown to be enlarged. In 80 patients of the 100 diagnosed as questionable and in 24 diagnosed as positive, the apices were the parts under consideration. In 5 cases of suspected aneurism of the aorta, there proved instead to be enlarged bronchial glands present. Honeij concluded that enlargement of the bronchial glands occurred more frequently on the right side than on the left, and that the physical signs at the right apex given by these glands in his experience were mistaken for apical tuberculosis. Enlarged glands occurred in both tuberculous and non-tuberculous patients, and probably occurred as frequently in adults as in children. Enlargement of these glands may produce pressure signs, irritation of the pneumogastric, symptoms of obstruction of the esophagus, of the right bronchus (particularly) and other signs.

In the recent work done by Philippi with the x-ray and blood studies, he frequently found tuberculosis of the bronchial glands, with clinically meager signs. He claims that active tuberculosis is often present in the bronchial glands in adults with but few or no characteristic symptoms. The symptoms which he enumerates from his cases which were diagnosed by x-ray pictures and blood studies (see pictures in Brauers' Betrage Bd. XXI, Heft 1) are inter-

* Critical Review of The Theory of Regional Muscle Spasm, etc. Interstate Med. Jour. (Pomeroy), Oct., 1912.

esting from the standpoint of our present study, in that one may easily overlook these cases and the diagnosis is difficult. From the standpoint of referred pain they are of especial interest. These signs and symptoms are: a general feeling of weakness in contrast with otherwise seemingly good nutrition; easily fatigued bodily and mental activity; pain under the breast bone or between the shoulders or into the arm, particularly in women before the period; nervous dyspepsia, cramp-like pain in the stomach like tabetic crises; irregular pulse and cardiac palpitation; paroxysmal coughing like asthma (compression of vagus); weak voice (relaxation through the recurrent laryngeal); slight pains through the sides of the chest; pallor of the skin without Hb. deficiency; flushing of the face and irregular dilatation of the pupil; and painful points over the 2d to 7th dorsal vertebrae.

I have recently observed two patients with these symptoms who gave also points of maximum pain or tenderness over the maxima of the third, fourth, fifth and sixth dorsal zones, and the x-ray showed nothing but enlarged bronchial glands. These two cases showed spasm of the muscles over the upper left apex and lower lobe and slightly over the right apex. There were no definite lung signs, but the tuberculin test (Von Pirquet) was positive. One patient was convalescent from a streptococcus pneumonia (left lower lobe) and had been continuously under observation. There still remained over the left lower lobe some rigidity of the muscles and the apex showed distinct rigidity of the muscles. The x-ray did not reveal any changes in the pleura, but enlargement of the glands at the hilus of the lung. In the one case hyperalgesia over the maxima of the lower dorsal areas persists to this day, giving, even on the right side a tender point over the gall-bladder region and the points on the chest are still painful. Both of these patients are apparently perfectly well. Therefore, I would state that we may expect various manifestations in the muscular covering of the chest wall from bronchial gland enlargement without active tuberculosis of the lungs; and further that following an acute inflammation of the lung for many months, possibly years, we may find reflex hyperalgesia and differences in the muscular tension between the opposite regions of the thorax.

Differences in development also play a puzzling factor in the use of muscle changes in the diagnosis of pulmonary tuberculosis. The occupation must be considered. For instance, in a young violin player the right shoulder and chest girdle was so developed and the muscles in such a state of tone that comparison with the left side was absolutely misleading. It happened in this instance that the left apex was the side involved. Cranking an auto and other oft repeated muscular actions lead to hypertrophy about the shoulder girdle and neck which gives rise to considerable confusion.

Habitual posture, as in sewing, writing, etc., holding the head on one side or the other, brings into permanent prominence the muscles of one side of the neck and chest so that one seldom will find any person, even otherwise normal, who does not show some difference in the prominence of the scaleni, sterno mastoid, trapezei and other muscles. This can be observed even in early childhood. In fact it is rare to find any person whose shoulders are absolutely on an even level. Examination of many recruits for the army and other observations convince me that this is so. Hence one meets at the outset on fundamental grounds, differences in muscular tension, which would lead to erroneous interpretation.

Deformities of the spine in slight degree are so common from various causes, that unquestionably they may be responsible for the lack of uniform contour of the shoulder girdle, neck and thorax. A moderate degree of scoliosis is present in almost every individual, and causes irregularities in posture and development of the above portions of the body, and brings about inequalities in muscular tension and prominence.

The influence of the superficial tissues, too, is important. The naturally thin individual with little fatty covering gives an erroneous impression on palpating the muscles of the chest, both as to rigidity and degeneration. Fatty deposits on the other hand make differential palpation practically out of the question. Particularly is this so in men and women past forty years of age whose tissues are everywhere more or less fatty and atrophic. (In such cases the tension in the sterno-mastoid and scaleni will serve as a guide.)

There are also certain diseases which may cause muscular rigidity about the neck and chest. Of these may be mentioned spondylitis, Potts' disease, paralysis agitans, arthritis deformans, rheumatism (shoulder joint especially), suppurative disease of the middle ear, scoliosis and rachitis. The pressure of an enlarged aorta on the vertebral bodies may also be mentioned here, as well as circumflex and brachial neuritis, the effects of cervical rib, wry neck and similar conditions.

The following case will illustrate the confusion which may arise in considering the diagnostic significance of changes in the muscular coverings of the chest.

A young woman in good nutrition, nurse by occupation and constantly associated with tubercular patients, began to have slight afternoon temperature. There were the following symptoms present; slight bronchitis, aching through the right side of chest, slight redness of the pharynx and tonsils, rapid pulse, some weakness, constipation and the history of intestinal fermentation. On examination there was some tenderness and limitation of motion in the right shoulder joint with some grating. Also the muscles over the apex and upper lobe of the right lung showed much rigidity. The breathing was slightly rough through the same areas and "pseudo-rales." The rales could easily be traced to the movement of the right shoulder joint.

There was marked hyperalgesia over this same area, extending down over the deltoid area. There was a maximum point of tenderness just inside the shoulder joint and under the outer third of the clavicle. The spinous processes of the second, third and fourth dorsal vertebrae were tender, with some tenderness over the trapezius ridge and the muscles covering the scapula. These muscles were also somewhat rigid, even allowing for the greater development of the right side. The patient being in fear of possible tuberculosis, considering her constant exposure, a series of Von Pirquet tests with different strengths of tuberculin dilutions were made. A very slight reaction resulted from the original tuberculin. The symptoms subsided under large doses of salicylates and elimination treatment. The tonsils were somewhat ragged and while there was not a frank tonsillitis, it was thought advisable to remove them. Some time later this was done and the patient has had no recurrence of the trouble. The muscles over the right shoulder girdle and areas mentioned have since become somewhat degenerated and there is still some hyperalgesia of the skin. The condition evidently arose upon a "rheumatic" basis, and originated very probably in the tonsils. There was never any actual paralysis of the circumflex or other nerves of the brachial plexus, and there is good motion in the right shoulder joint. The peculiar circumstances under which the illness arose, the exposure to tuberculosis, the afternoon temperature, bronchitis made it necessary to rule out tuberculosis. In this case certainly the muscle signs would be entirely misleading, and would be so today. While in some respects this is an unusual case, the situation is one which may confront the examiner at almost any time.

CIRCUMFLEX NEURITIS.

Of interest in connection with the study of the sensation and of the muscle spasm over the chest wall is a case of circumflex paralysis due to rheumatic affection. A young woman presented an arthritis of the left shoulder joint with hyperalgesia over the course of the circumflex nerve. The arm could not be raised upward because of pain and the deltoid was in marked spasm, as well as the scaleni, supra spinatus and the pectoralis muscles. Slight atrophy over the shoulder took place and the joint became slightly limited in motion. (Arthritic neuritis. See Starr, page 181.) Six months after the affection began there was marked grating in joint, good motion has been recovered, but there was distinct increase in prominence of the supraspinatus and pectoral muscles; furthermore, on auscultation over the left chest there was a beautiful transmitted grating sound (pseudopleurisy) which could easily be traced to the shoulder joint. The patient to all intents was otherwise in perfect health.

The following conditions obscure the diagnostic importance of muscle spasm and degeneration in the diagnosis of intrathoracic disease. The sign may be produced by a number of different diseases in the chest; being segmental in its origin, it may arise from various lesions in the mediastinum, bronchial adenopathy, aneurism, pericarditis, new growth, cardiac disease,* emphysema, asthma, etc. Again it may be a residual of former inflammatory condition of the pleura or lungs. It may occur from irritation of the pneumogastric, sympathetic, phrenic, or spinal nerves *from lesions not in connection with lung tissue at all*, but occurring at or near the nerve origin (spondylitis, neuritis, etc.). Differences in development, occupation, posture, habits, deformities, age, nutrition, and certain diseases also confuse the picture. Rheumatic affections of the shoulder joint, particularly the type known as arthritic neuritis, with circumflex disturbance results in marked changes in the tone and feeling of the scaleni, the sterno mastoid, trapezius, pectoralis and other muscles of this region. Therefore, it must be concluded that muscle spasm and degeneration as a sign of pulmonary tuberculosis is to be interpreted only with extreme care and is of but suggestive value in a case of real doubt, as there are too many disturbing factors in the mechanism of its causation.

Some attention may be given here to the localization in the lung tissue of a lesion by means of reflex muscle spasm and also hyperalgesia. Also one must consider the influence of bronchitis, asthma and emphysema.

Certain well defined laws may be applied to the problem of reflex pain and pulmonary disease. If the tissue of an organ including the nerve ends is quickly destroyed, then the reflex pains are absent as also when the diseased organ is fixed in absolute rest. Now if these conditions are applied to the tuberculous lung, we can draw certain conclusions in regard to reflex pains. A decided tendency to reflex pains should be obtained when the lung is partly affected with foci, between which sound lung tissue remains, excepting, however, acute miliary tuberculosis or when collapsed of air free lung again begins to expand. On the other hand there should be no reflex pain when a lobe of the lung is quickly or completely consolidated or rapidly destroyed (active cavity formation). Therefore, the physical signs should vary in accordance with the characteristics of the changes in the pains. On the basis of these sensory studies then, one would expect the muscle signs to follow along similar lines, namely: when rapid infiltration is present with marked destruction of lung tissue, the muscles would fail to show much tonicity, but would show flabbiness (degeneration), and in a mild acute lesion with little destruction one would expect the greatest tonic contractions.

Würtzen could not definitely locate a lesion in lung tissue on the basis of reflex pain or hyperesthesia. According to the general law of radiation the initial impulse spreads through into neighboring segments and a "generalization" takes place (Head). Particularly is this

* Gibson and Eichhorst have demonstrated in angina pectoris, wasting of the muscles, changes in the texture of the skin, with increased myotatic, galvanic and faradic irritability, in the painful areas from segmental disturbance.

true during the increase in toxemia occurring with the febrile conditions in which condition, as in other diseases (see Influenza, etc., Head) the reflex pains tend to spread its boundaries.

The differential diagnosis between cutaneous tenderness due to local neuritis, hyperalgesia, due to visceral disease, and neuralgia is not often clearly described (see Abrams). The characteristics that may be brought forward in the functional hyperalgesia consist of being limited along certain lines that are vertical to the long axes of the extremities (around the ribs?). In hyperalgesia, tenderness to pressure also is found. The skin reflexes in such conditions need show no increased reflexes. Segmental disturbance gives true hyperalgesia, and cuts across several interspaces, is accompanied by vertebral tenderness and there is not usually any subjective disturbance. Neuralgia and neuritis give subjective disturbances and run along the interspaces, with more hyperesthesia rather than true cutaneous tenderness.

The question also of the influence of the accompanying bronchitis and emphysema in relation to the muscle phenomena must also be considered. In this connection the results of Würtzen's work with the reflex hyperesthesia is interesting.

Neither Head nor Egger nor Goldman held that emphysema played an important role in the production of referred pain. Würtzen felt that emphysema must have some influence in the production or modification of these sensory phenomena. Würtzen agrees with Head that acute bronchitis causes referred pain and hyperesthesia with marked frequency.

According to Head, the innervation of the lungs is from the third and fourth cervical segments and in conjunction with the third to ninth dorsal segments. Excepting the sympathetic, the lungs are innervated by the vagus and through a reflex of this nerve hyperesthesia in the region of the cranium and face may occur. The disease in the upper lobes (third and fourth cervical and upper dorsal) shows itself by radiation to the forehead and eyes. As soon as the lower lobes are affected, the hyperesthesia travels backward over the temples, the vertex, and parietal regions and the deeper the process goes toward the base of the lungs, the more the hyperesthesia approaches the bodies of the ninth dorsal segment and the area in the head approaches the neck.

In advanced tuberculosis the rigidity of the chest muscles, in part, disappears and a flabby, stringy condition ensues. At the same time one notices marked prominence of certain muscles, which results partly from a heightened activity of the accessory muscles of respiration. Pottenger states in one of his early papers that "While rigidity affects all the muscles of the chest, yet it is found in the greatest degree in the intercostals." (This he does not hold today.) In my opinion the intercostals offer the most difficult portion of the clinical picture to make comparisons. Here, inspection of the chest, limitation of motion, etc., gives the most aid. Cyriax notes a marked spasm of the erector spinae in pulmonary lesions, and also remarks that contractions of the diaphragm may exist in phthisis even before any other muscles are similarly affected. This unquestionably is true, as it has been shown by x-ray and clinical observation that a heightened diaphragm is an early sign of tuberculosis, even at the apex (Williams, etc.). The probable mechanism of this sign has been elsewhere discussed (phrenic nerve, etc., reflex inhibition).

In regard to the pectorals, Cyriax quotes the experiments of Boeri (Neuva rivista clin terap, 1906, IX, No. 6). He found that in cases of phthisis incipiens, that if no abnormal breath sounds over the apex could be elicited on auscultation, yet these sometimes became audible after a few minutes of deep massage over the apex of the lung. This according to Cyriax may have been due to removal of the muscular spasm causing the excursion of the apex to increase, though Krusenstern (Obosrenie psich, 1907, quoted St. Pater's Med. Woch. 1908, XXV, Russ. Med. Lit., page 35), who reinvestigated this phenomenon, concluded that it was due to mechanical irritation of the phrenic nerve causing the diaphragm to act more freely. Abrams would explain this by stating that at the beginning of the examination there was atelectasis of the apex, and by cutaneous irritation the reflex of lung contraction was excited, areation of the tissue followed, and the signs of disease became more manifest. Through his clinical researches, Abrams has demonstrated various reflexes, cutaneous and vertebral, whereby the lung tissues may be made to contract or dilate, with concomitant changes in percussion and auscultation. His observations deserve careful study. Cyriax claims to materially improve the respiratory activity of the contracted muscles by massage, regarding the contracted state of the abdominal and chest muscles as impediments to respiration (See *Medical Journal*, June 17, 1911, p. 1088).

It may be noted here that Cyriax claims to have briefly described in 1903 in "The Elements of Kellgren's Manual Treatment" reflex contraction of the abdominal and chest muscles resulting from morbid conditions of the lungs bronchi and pleurae. Jessen seems (1905), however, to have noted the changes in the trapezius, and so many authors have touched upon this question that it would be useless to discuss the point of priority. Certainly to Dr. F. M. Pottenger should go the credit of thoroughly investigating and elucidating this phenomenon.

THE QUESTION OF DELIMITING VALUE OF THE MUSCLE SIGNS.

On the basis of the sensory phenomena and muscle signs, disease at the apex of the lung arouses to a hypertonic state the scaleni, sterno-

mastoid, trapezius, levator scapulae; and if it spreads lower down, the pectorals, supraspinatus, rhombodeii and intercostals are stimulated. While a certain degree of delimiting over the inflamed area seems to exist, I do not believe that one can by any means estimate to any degree of scientific exactness the extent of the tuberculous infiltration, as has been held by Pottenger. Too often have I seen this to be erroneous by autopsy findings. Therefore, I hold that it is only a rough and inaccurate index that inflammation is present in lung tissue or intrathroacic tissue. While White and Van Norman state that according to their experience, the reflex hyperalgesia limited itself over the diseased lung tissue, in my observation in comparison with autopsy findings in cases upon which I had studied the reflex hyperalgesia and muscle changes, these signs give only a hint as to the intensity of the inflammation and not the extent. In other words the muscle spasm and degeneration as well as reflex hyperalgesia were observable in a limiting way, only over the intensely changed tissue and did not clearly show the full extent of the lesion. From the very nature of the variations in the pathological deposits in lung tissue, the bizarre changes in anatomical relations occurring in advanced cases, one could not expect from signs relating to nerve tissue and reflex in character, to give accurate delimiting information. Therefore, the conclusion must be given that reflex hyperalgesia and regional muscle phenomena are only general in character, and any attempt to deduct information leading to accurate localization or limitation, would be illogical and by practical experience with autopsy comparisons proven to be uncertain and misleading. Therefore, one must consider these signs from the standpoint of an aid in clinical examination for accurately localizing the lesion in the lung or thorax, as of very variable significance.

From a standpoint of the opinion of various authors who have written upon this sign, the following extracts are given: Hart claims that the conditions observed are not due to reflex causation but result from overwork as described by Frund and his followers (See Pottenger's recent review): He also raises the question of local toxic action but discards it as being too selective. Bonninger claims to have demonstrated a unilateral lymph stasis which cause the tissues to be firmer than normal, he rejects the reflex theory, and believed that disease of the underlying pleura was the cause. Orzag confirms Pottenger's findings, but regards Balint's electrical reactions over the diseased area as of more significance for diagnosis. He did not consider that the muscle spasm was of any value for early diagnosis. Wolff-Eisner compared the muscle findings with the conjunctival tuberculin reaction and concluded that the great practical worth of light touch palpation in the recognition of muscle change was "in the recognition of the initial active tuberculous process" and hence was of value from a therapeutic standpoint in pointing out the presence of active processes.

Bredow expressed doubt as to the value of muscle rigidity as described by Pottenger. He examined 107 cases of pulmonary tuberculosis and found only 7 in whom the sign was present. Against these seven he was able to oppose seven others who had the same rigidity, but in whom careful examination elicited no indication of any lung disease. He concludes that the sign has no value in the diagnosis of tuberculosis. He also concluded—that the symptom of muscular rigidity as an early symptom of disease of the lung cannot be confirmed. Differences in the state of contraction and consistency of the muscles of the thorax often occur. They are to be explained as a result of painful irritation which necessitates holding one part of the thorax quiet, or to the effect of habit and ocupation on the position of the upper dorsal vertebrae and on the structure of the upper thoracic aperture.

From a diagnostic standpoint as to the presence of intrathoracic disease, most probably pulmonary, we can say that muscle spasm and degeneration is as definite a sign of those processes as similar phenomena in the abdomen. And in the hands of the expert clinician, one accustomed to the various phases of this problem, I believe that muscle changes over the thorax deserve careful study, and gives reliable information that inflammatory changes or pathological processes are to be found in the thorax, provided there is nothing in the peculiarities of the individual which would otherwise satisfactorily account for the signs. It must be understood that regional muscle spasm, degeneration and reflex hyperalgesia *may result from causes other than pulmonary tuberculosis,* but with these limitations as previously outlined, the careful study of these phenomena is to be recommended to every thoughtful clinician.

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THE IMPORTANCE OF THE EARLY RECOGNITION OF SUPPURATIVE OTITIS MEDIA.*

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In any field of medicine, when a disease has advanced so far in its course that there is no mistaking the diagnosis, then is our conduct relative to that particular case plainly marked out for us, and as we progress in our knowledge of the afflictions of the human body we are the better able to recognize slight manifestations pointing to a diseased organ, and the more competent to forestall possible complications.

We all of us know the dire results which may follow the neglect of acute abdominal conditions. Thanks to the excellent results achieved by our progressive surgeons of the present day we unhesitatingly recommend intervention in suitable cases.

Many of us have at some time seen fatal ear cases; they are all too common, although the part the ear plays is not always recognized. How to separate the serious cases from the simple ones and how to do it early enough to save life is one of the problems confronting the aural surgeon.

A recent essayist[1] has called attention to some figures relative to the deaths from suppurative ears that are so astonishing that I wish to quote to you briefly from his article. In investigating the reports of the New Hampshire State Board of Health he found that during the past 26 years there had been over 5000 deaths recorded from meningitis. During this period there were more than twice as many deaths from meningitis as there were from diphtheria and croup, although diphtheria was for at least half that period extremely fatal, as the use of anti-toxine had not been introduced, and there were more than seven times the number of deaths from meningitis as from scarlet fever.

For the four years 1906 to 1909 inclusive, he found that there were 815 deaths from simple meningitis, or over 200 a year. These did not include cerebro-spinal or tubercular meningitis, which were reported separately.

Knowing that suppurative aural disease is the most common cause of septic meningitis, he thought it would be interesting to ascertain the numbers of operated mastoid cases in the State, as compared with the fatal meningeal cases.

Inquiry among the hospitals throughout the State showed that for the period in question but 94 cases of mastoiditis had been operated upon, and that 33 of these had occurred in a relatively small city. This community reported 53 deaths from meningitis during the four years. Another city having three times the population reported but 20 mastoid operations for the four years, and *253* deaths from meningitis for that time.

This showing—five times as many deaths from meningitis, and only two-thirds the operated mastoids, in a much larger center of population—is certainly significant. To show that these figures are by no means accidental, still another community of 10,000 population reported two mastoid operations for the four years, and 62 deaths from meningitis.

Now it has been said that there are three kinds of lies: just plain lies, qualified lies, and statistics. Notwithstanding this statement, one may draw his own conclusions as to the reason for the comparative freedom from meningitis in the community where the aural conditions were recognized and operations insisted upon.

Unfortunately I am unable to present a similar comparison between the number of operated cases in Massachusetts, and the deaths from meningitis, but I should question very seriously if the ratio was anything like that given above. For one reason, a great many more cases receive surgical treatment, and if these figures mean anything it is that cases treated with the knife are less liable to have disastrous results. In the Massachusetts Charitable Eye and Ear Infirmary alone last year there were 263 operations on the mastoid, and while of course that is a very large hospital, there are many others in the State where similar operations are performed.

It is true that the number of operations has increased largely in recent years, but this is but the repetition of the history of abdominal operations, and with increased knowledge of the grave consequences of allowing the cases to go on too long came early intervention.

It seems to me that the best way to lead up to our present-day methods of handling these serious cases is to glance backward a few years, note the treatment then in vogue, and relate the advances step by step as knowledge grew.

Starting in at a period about twenty years ago we find that expectant treatment was commonly employed in many cases of mastoiditis that would unhesitatingly be operated upon today. It is true that many of the cases went on to recovery without operation, but only after prolonged convalescence; it is also true that we had many worse operative cases at that time because of the later stage of the disease at which we interfered.

The notable changes in surgical treatment do not altogether rest with the fact that we operate earlier in the course of the disease. The very type of operation on the mastoid has changed.

* Read by invitation at the Annual Meeting of the Medical Association of the State of Alabama, April, 1912.

[1] F. E. Kittredge: "Dangers Incurred as a Result of the Non-Recognition of Acute Aural Infections With Statistical Data." Boston Medical and Surgical Journal, Sept. 12, 1912.

The writer has seen surgical intervention delayed until there was marked fluctuation over the mastoid, and then the operator was content to employ the time-honored Wilde's incision, allowing the spontaneous fistula in the bone to drain the mastoid cavity as best it might.

Although Schwartze laid down the rules for a complete mastoid operation more than forty years ago, the procedure was not generally adopted in this country until many years later, and we find that the next step in advance of the Wilde's incision was to simply perforate the cortex of the temporal bone, a drill being used for this purpose by many operators.

In the course of years it was found that the bad cases—the ones requiring secondary operation, or where there was a fatal result—almost invariably had cells which had been overlooked, and which, filled with pus and granulations, had delayed healing, or given rise to extension to important neighboring structures. This naturally led to the more thorough removal of all cellular structure from within the mastoid, and then strangely enough, it was found that instead of the more radical operation requiring more time for convalescence, it actually shortened the time for recovery, in many cases by several weeks.

Perhaps the most remarkable achievement of the two decades from a surgical point of view was the introduction of the operation upon the lateral sinus and jugular vein as a means of preventing the spread of sepsis from the mastoid through venous channels. Although the idea of dissecting out the thrombus was first proposed by Zaufal some 30 years ago, as the result of post mortem observations, it remained for Macewen to publish the first list of successful cases, with distinct indications for the operation. Not long after the report of his cases the first operation in this country for the relief of this complication of mastoiditis was performed at our Infirmary. This was in March, 1894, and the patient recovered.

Previous to this time extension of aural suppuration to the lateral sinus had pretty generally terminated fatally—at least where it was possible to diagnose the condition. Today nearly all our patients with sinus thrombosis recover, provided they are operated upon early enough. While this is certainly a brilliant advance over old conditions, it must be admitted that it is perhaps our most striking one. Yet great improvement is noticeable along all operative lines.

Having shown the progress of the surgical treatment from the medical incision to the complete operation, let us consider for a moment some of the causes which lead up to the necessity for this treatment.

Not long ago the family of a patient who was convalescing from a severe mastoid complication inquired as to the best thing to do for a "simple ear-ache"; to which the answer was that there were no "simple ear-aches"; that practically all were due to abscess formation, and potentially at least, were capable of causing most distressing and serious illness. So, then, we will start with the consideration of abscess in the ear as the primary cause of our mastoid disease and its complications.

We all of us know that an acute otitis media is usually ushered in with severe pain. How many of us realize that under some conditions, as during the course of scarlet fever, diphtheria, and occasionally in tuberculosis, it is quite possible for a purulent process to originate in the ear almost unheralded, except possibly by a slight stuffy sensation, or moderate deafness? Yet this inflammation is quite as capable of causing as disastrous results as the more painful type of disease, and indeed the destructive local process seems to be even greater, as witness the extensive loss of drum tissue and deafness following scarlet fever and tuberculosis.

For years we have been learning that an abscess involving the integrity of the middle ear jeopardized not only the hearing, but possibly the life of the individual. One who sees many of the old spontaneous perforations cannot but help feeling what a blessing to humanity it is that it is now possible to relieve the pressure of pus formation within the drum cavity by making a clean surgical incision in the membrane without waiting for spontaneous perforation. The results in the case of the incised drum are a speedy cessation of discharge, and restoration of normal hearing.

Contrast this with the drums which rupture spontaneously, where there must of necessity be a larger cicatrix, even provided the membrane heals. This is accounted for by the fact that the perforation following an incision is linear. Spontaneous opening, on the other hand, does not occur until the tissues have become much swollen and softened by inflammation, and under these conditions the resultant damage to the drum is not unlike that which would happen if one were to put his fist through a sheet of paper. It not infrequently happens, however, especially in the neglected cases, that this suppurative process continues for years, and as a result of this condition many of our most severe complications, as brain abscess and meningitis, set in. So well recognized is this fact that the insurance companies will not now class as a desirable risk an individual with a discharging ear. Even should no fatal result follow this chronic suppuration, consider the condition of the patient so unfortunate as to possess it. At the best, one of the important organs of special sense has been crippled for life.

Perhaps the greatest fallacy one can entertain is the belief that because an abscess in the ear has ruptured, all danger to the patient has passed. Our experience has been that complications result in a far greater percentage of cases where Nature is allowed to follow its own bent, and that one of the best preventives of such complication is early and free incision of the drum membrane.

Now how are we to know of the extension of

the disease to the mastoid and its neighboring structures? Here early teaching has led many of us into the error of watching for swelling behind the ear, and temperature as a guide in detecting mastoiditis. The writer has frequently had occasion to point out that the average mastoid is unaccompanied by marked rise in temperature, and, in fact, that where such rise is present, it makes one extremely suspicious that he is dealing with some complication. One rarely sees a case with marked post aural swelling in these days unless it be some neglected case, or possibly a child, for the anatomy of the child's temporal bone is such that pus passes readily from the antrum to the tissues over the mastoid. This apparent knocking out of two of the main props on which we formerly built the diagnosis of mastoiditis would seem to leave us without satisfactory evidence of the extension of the the disease in the ear.

In reality, however, we have a better set of symptoms, provided we are able to interpret what is taking place in the drum cavity. It is but natural that as the initial abscess originates here, it is to this cavity that we should look for evidence of extension of the trouble. It may be taken as axiomatic that no physician need hope to recognize the finer changes in the middle-ear unless he is competent to examine with the head mirror and speculum, and appreciate what he sees. Not only may one obtain an index of the pathological conditions by observing the changes in swelling of the drum membrane from day to day, particularly if this be accompanied by œdema of the canal walls, but a fairly accurate knowledge of the changes taking place in the tympanic cavity may be learned by testing the hearing for the whispered and spoken voice. One can readily understand that swelling of the mucous membrane around the ossicles would greatly interfere with their transmission of vibrations, and experience shows that time and again changes in swelling so slight as to be imperceptible to the eye may be readily detected by these tests.

Another important aid to diagnosis is the careful observation of the quantity and character of the discharge from the ear. A serous discharge, usually yellow, sometimes hemorrhagic, is always to be expected in the early stage of the acute abscesses. So long as it remains serous, little danger is to be apprehended, although without much question where there is profuse serous discharge the membrane throughout the whole mastoid is inflamed. It is when the discharge becomes purulent that we must be especially on the watch. Pus coming from the tympanic cavity in moderate quantity is probably manufactured in that cavity. If it contains a large mucous element that is cause for congratulation, as this usually means speedy recovery; if it steadily increases in quantity and becomes very thick it means that the mastoid is full of pus, even although there be no swelling over, or tenderness of that bone.

Far be it from the purpose of this paper to discredit the commonly accepted signs of mastoiditis, namely, tenderness on pressure, and œdema behind the ear. These constitute most reliable symptoms when present; but so many cases are encountered where they appear late in the course of the disease that the writer wishes particularly to urge the importance of weighing *all* the evidence. In fact, most cases of infection of the lateral sinus, and many brain abscesses, occur in temporal bones which are so compact and have so few cellular spaces that there is but little chance for abscess formation in the bone itself. This characteristic first appealed to the writer several years ago, in connection with some anatomical researches, and now for a series of years it has been the custom to note the size and contour of all mastoids under observation for the purpose of collecting data which might assist one in deducing certain facts, such as the probable structure of the bone, *i.e.* whether composed of large pneumatic cells, fine diploe, or sclerosed, the probable location of the lateral sinus, etc. It is most interesting as well as gratifying, to find that these observations yield information which is no mean aid to establishing a diagnosis, and it becomes a most valuable adjunct to teaching where a clinic affords as much operative material as does ours, for the pathological findings furnish the answer to our riddle.

It has long been believed that the morphology of the mastoid cells has had more to do with the severity of the cases than the bacterial character of the infection, and this being so, it is of the greatest importance that one avail himself of every means by which he can ascertain the internal structure of the bone. Of course one can readily understand that a mastoid containing large cells and much pus would more quickly give rise to external symptoms of trouble than one of the small, compact variety, and conversely, that the latter would present better opportunities for the pus to burrow elsewhere than externally.

The question of temperature in aural complications is rather a curious anomaly. High fever, as high as 104, is common with the onset of middle-ear abscess. This subsides quickly after drainage through the drum is established, whether spontaneous or following incision, and may not recur even though the mastoid become full of pus. Moderate fever may occur during the onset of mastoid infection, and there is apt to be some slight elevation of temperature as the reaction to mastoid operation. High temperatures with wide variations, however, especially if accompanied by chills, or nausea and vomiting, should give rise to the gravest apprehension. This is precisely the set of symptoms which accompanies the more serious infections, such as thrombus in the lateral sinus, or brain abscess.

One of the most important points for the general practitioner to remember is that absence of temperature does not mean freedom from

trouble, and to this may be added the statement that no patient with acute purulent otitis media can be considered as free from the possibility of extension of the disease while any trace of the discharge exists in the middle ear. Having this in mind we may be sure that we shall save many of our patients from needless complications by a careful oversight of all acute otitic suppurations, and indeed, a routine examination of the ear in all general diseases where any symptoms are referred to that organ is greatly to be commended.

SURVEY OF THE TUBERCULOSIS SITUATION IN MASSACHUSETTS.*

BY JOHN B. HAWES, 2ND, M.D., BOSTON,

Assistant Visiting Physician; Director Tuberculin Department, Massachusetts General Hospital; Secretary of Board of Trustees of Massachusetts Hospitals for Consumptives

DURING the past few years a steady but sure progress has been made in our State campaign against consumption. New and progressive legislation has been enacted, local hospitals are being established, the State sanatoria have been enlarged and improved and a sane public opinion is making itself more and more felt in regard to the disease and its prevention. In this paper I propose to describe the situation as it now stands, to discuss plans for the future, and to state what I believe to be the policy of Massachusetts concerning the tuberculosis question.

The number of deaths in this state from pulmonary tuberculosis in the year 1911 was 4,817; from this figure there are various methods of estimating the number of actual cases of consumption. None of these will give accurate figures, but only an approximate estimate. Philip of Edinburgh believes it safe to multiply the number of deaths at a given time in any community by 20; more conservative estimators in this country use 10 as a factor instead of 20. Even this gives nearly 50,000 cases of consumption in this State in 1911. In 1910 a commission appointed by the Governor to "Investigate and Report Upon a System of Caring for Tubercular Patients" gave as its opinion that there were approximately 35,000 cases of all forms of tuberculosis in Massachusetts at that time. Of these cases 7,000 to 10,000 were probably extra-pulmonary, and many others not in need of hospital or sanatorium treatment. This Commission estimated the number of consumptives needing hospital or sanatorium care as from 10,000 to 15,000; they further stated as their opinion that a total of from 5,000 to 6,000 beds would probably care for all these patients. Dr. Arthur T. Cabot, Chairman of the Trustees of Hospitals for Consumptives, basing his estimate on the ground that the average consumptive needs hospital treatment at least during the last two years of his life, considers that the number of deaths multiplied by two will given a fair estimate of the number of consumptives *needing treatment in an institution* at a given time. This gives us as our working basis 9,634 consumptives, approximately 10,000, needing institutional care.

What are our facilities for handling these patients? There are at present not over 2800 beds, public and private, for consumptives, in this state. This figure includes beds at our insane and criminal institutions. During the past year the average length of stay of patients at the North Reading, Lakeville and Westfield State Sanatoria was five months. As the great majority of these patients were in the advanced stages it is fair to use this period, five months, as an average length of stay. This would allow the 2,800 beds in Massachusetts at the present time to accommodate about 5,500 patients, leaving 4,000 to 4,500 consumptives to be cared for in their homes or not at all. Despite the great advances made in recent years by the "class" and "home sanatorium" methods of treatment it is safe to say that the number of patients who are, and indeed who can be well cared for in their own homes, as compared with a well run hospital or sanatorium is so small as to be negligible. This but emphasizes the great need of further beds. As these patients under consideration are largely of the advanced type it is only humane that they be given treatment in institutions near their homes, where they can be easily seen and visited by friends and relatives. This means local tuberculosis hospitals.

The Commission above referred to as part of its recommendations urged the passage of legislation to encourage the building of local tuberculosis hospitals. Following this advice the Legislature of 1911 passed three important acts now generally known as the "Tuberculosis Hospital Act," the "Tuberculosis Dispensary Act," and the "Subsidy Act." The first of these requires each city or town of 10,000 inhabitants or over to erect and maintain a hospital for contagious diseases, including tuberculosis, plans for such hospitals to be first approved by the State Board of Health; the second requires the same cities and towns to open and maintain a dispensary for the discovery and treatment of tuberculosis, while the third, supplementing the first, provides for a subsidy of $5.00 per week per patient whose sputum shows the presence of tubercle bacilli, to all cities and towns maintaining a tuberculosis hospital or private incorporated tuberculosis hospital officially approved by the Board of Trustees of Hospitals for Consumptives.

As a result of this legislation protests arose on the one hand from certain cities and towns who, even with the help of the State subsidy, were not at all anxious to spend the money necessary to comply with these laws, and on the other from certain persons who claimed that this was fundamentally bad legislation and of no practical value. Despite this, however, these laws have been effective and slowly but surely are becoming potent factors in the anti-tubercu-

* Read before the Bristol North Medical Society, Sept. 19, 1912.

losis campaign in this State. Other States, such as New Jersey and Wisconsin have passed similar laws, including the "Subsidy law." In these States local hospitals, usually based on the county plan rather than that according to cities and towns, are a part of the general scheme.

The Massachusetts law provides "that a city or town subject to the provisions of this act (the Tuberculosis Hospital Act) which upon the request of the State Board of Health refuses or neglects to comply with the provisions hereof shall forfeit not more than five hundred dollars for every such refusal or neglect." There are those who loudly protest against what they call dilatory methods on the part of the State authorities in not seeing that these laws are at once complied with and fines imposed according to the terms of this act. Those who have given thought to the subject, however, know that such are not the ways of progress; that it is far better to go slowly, to suggest and advise rather than to rouse obstinate resistance by mandatory methods. The following is the present status as regards local tuberculosis hospitals and dispensaries in the 54 cities and towns in this State of 10,000 inhabitants or over.

These cities and towns have already established or are actually building tuberculosis hospitals: Boston, Fall River, Cambridge, New Bedford, Lynn, Springfield, Lawrence, Somerville, Holyoke, Salem, Quincy, Pittsfield, Waltham, Brookline and Westfield. Of these 15 cities or towns 10 have hospitals which have been approved and are, therefore, in position to obtain the subsidy of $5.00 per week for each indigent patient with positive sputum.

The following 10 cities or towns are planning to build hospitals: Worcester, Brockton, Malden, Haverhill, Fitchburg, Everett, Northampton, Newburyport, Clinton and Adams.

The remaining 29 cities and towns as far as I have been able to ascertain have as yet taken no definite steps toward complying with this law. Of these cities Lowell, with a population of 106,294 and with 114 deaths from consumption in 1911, stands preeminent in unenviable isolation. Newton has a few beds in connection with its City Hospital; Taunton, with 34,259 inhabitants, and Chelsea, 32,452, come next in the list, while lower down are a number of smaller towns such as Wakefield, Arlington, Greenfield and Winthrop, with 10,000 to 11,000 inhabitants each. The law provides that cities and towns which can conveniently do so may combine in building a hospital. Probably many of these smaller places will find this the best solution of the difficulty. At both the Cambridge and Somerville tuberculosis hospitals there are always patients from neighboring towns whose expenses are paid by their local boards of health. As such arrangements comply with the spirit of the law, by providing a place where advanced consumptives can be cared for near their homes, there is no reason why further hospital accommodation should be demanded of these cities and towns until it has been shown that the present arrangements are unsuitable. On the other hand, a city in the centre of the State which is planning a local hospital but is at present without facilities for caring for its consumptives, asked that the state subsidy be granted for one of its patients kept at a municipal hospital of another city some fifty miles away. As this did not comply with the spirit of the law the request was not granted.

Almost every form of construction can be found in these local tuberculosis hospitals, although more and more the tendency is toward



Lynn Tuberculosis Hospital Before Being Reconstructed. 1912.



Lynn Tuberculosis Hospital After Being Reconstructed. 1912.

a simple and inexpensive type. This is in distinct accord with the opinion of experts all over the world. Boston, at tremendous expense, has built a magnificent hospital at Mattapan where everything has been done to make the life of the advanced consumptive as happy as possible. Personally I am strongly of the opinion that equally good results could have been attained with a vastly smaller expenditure of money. Cambridge has gone almost to the other extreme and has built a hospital in a rather unattractive location of somewhat unnecessary plain and severe construction. Lynn has made over a simple frame house into an excellent hospital for 45 or 50 patients. The location is pleasant and easy of access; the cost in the neighborhood of $500 to $600 per bed. Lawrence has an excellently planned institution for 85 or 90 patients. The cost was not over $500 per bed. Owing to an unfortunate mixture of politics and medicine this hospital has never had more than 50 or 55

patients at one time. Holyoke has built a hospital on the pavilion plan, on a delightful site, at low cost but apparently high efficiency. Although it holds only 27 beds, which is a small allowance for a city the size of Holyoke, 57,730, it seems to meet the situation very well. This is probably due to the nearness of the Westfield State Sanatorium, to which institution many Holyoke patients prefer to go. Fall River has prepared plans and models for a large and thoroughly modern hospital. Here again politics has interfered and forced the postponement of actual building. The average weekly cost of maintenance at these local hospitals varies from $7.00 to $10.00. With the help of the State subsidy of $5.00 a week, however, the actual cost of maintenance is rendered very low indeed.

The situation as regards the establishment of dispensaries is not so encouraging. Despite the fact that a good tuberculosis dispensary needs only a small office, a waiting room, and the services of a doctor and a nurse, local boards of health have been very slow to comply with this law. In many instances the local tuberculosis society has already established a dispensary. In some cases this was turned over to the board of health but more often it was allowed to continue as before. The following cities and towns, 18 in number, have tuberculosis dispensaries maintained by the local board of health, the local tuberculosis society or some other organization: Boston, Chelsea, Worcester, Fall River, Lowell, Cambridge, New Bedford, Springfield, Brockton, Haverhill, Salem, Fitchburg, Pittsfield, Brookline, Attleboro, Newburyport, Gardner and Clinton. Of these 18 dispensaries only six were established as a result of the "dispensary act" of 1911 and are managed by the local boards of health. I hope that the rest of 1912 and the year 1913 will see each of the 54 cities and towns in Massachusetts of over 10,000 provided with a suitable dispensary open at least every other day and one or two evenings a week. Doctors will give their services if necessary, although they should be paid and well paid for them; a good nurse can be secured for $600 to $1,000 a year, and is the most important feature of any such dispensary. The cost of these need be comparatively little beyond the nurse's salary. The good which they can accomplish is enormous.

How are these local tuberculosis hospitals and dispensaries to fit in with the State sanatoria and the tuberculosis campaign in general? If they are not so made to fit in as integral parts of a general scheme much of their usefulness will be lost. As stated above, the part to be played by the local hospital is to care for the advanced and dying consumptive. The local dispensary, in addition to diagnosing and discovering new cases, must follow up old cases discharged from sanatoria; it must see that sick patients keep up treatment, and that patients arrested or improved get proper employment. These two functions—that of caring for the advanced consumptive in local hospitals and of following up cured or arrested patients on their return are the two most important factors, in my opinion, in the entire field of tuberculosis work, and at present the two factors to which least attention is paid.

When a patient enters or leaves a State sanatorium certain machinery is set in motion. If the patient is indigent, as stated on his application blank, the local board of health is notified on the arrival of the application at the Boston office. Again on admission to a sanatorium a few weeks later, the local board of health is notified so that the patient's rooms or house may be fumigated and his family cared for. On discharge from any State sanatorium the local board of health is again notified, as well as the local tuberculosis society or other agency, and also the State Health Inspector of that district. It would seem, then, that everything possible had been done as far as the State authorities are concerned to look out for the interests of the patients prior to admission and on discharge by thus notifying those whose duty it is to care for them. Despite these efforts it would seem as if the ground gained at the sanatoria was largely lost through lack of coöperation on the part of local boards of health. At the last tuberculosis conference held in Boston in April, 1912, papers were read by Dr. Curtis of Newton and Dr. MacKnight of Fall River showing the pitiable state of many consumptives after their discharge as "improved," "arrested" or "unimproved," as the case might be, from the State sanatoria. These remarks, looked upon by many as evidences of failure on the part of the state institutions, were really indictments against the boards of health in the cities concerned. The sanatoria have done good work, but this work to be effective must be followed up by equally vigorous efforts on the part of local authorities. To do this work properly local tuberculosis hospitals are necessary for advanced cases, and local dispensaries, provided with a suitable nursing force are absolutely essential to clinch and continue the gain made during the patient's stay at the sanatoria.

The Boston Association for the Relief and Control of Tuberculosis has recently placed at the disposal of the State Tuberculosis Board a social worker to investigate the condition of discharged patients, and to ascertain how far local authorities are co-operating with State authorities in looking after and helping patients discharged from our sanatoria. This work has been going on for only a short time but results even so far and covering only comparatively few patients, 107, are striking. Of those patients discharged within the last three months from our State sanatoria only 27 have been visited in their homes by an agent of the local board of health, and in only 56 instances had the premises been fumigated on departure of these patients to

sanatoria. Last year the State of Massachusetts spent over $550,000 for the care of its patients at our four State sanatoria. In addition to this a large amount was spent in the care of tuberculous patients at the State Infirmary and at the various criminal and insane institutions; the money paid over to cities and towns under the subsidy act is already large and constantly increasing. It would seem then that the State is doing its full share. Is it not the urgent duty of local authorities to exert themselves to bring about a fuller coöperation with the State efforts than they are now doing? The expenditure in money, time and energy need not be great; the good results obtained would be incalculable.

It has been said that Massachusetts has no settled State policy as regards tuberculosis. In my opinion it is ignorance of the facts which leads those who adhere to this view to make any such statement. Massachusetts has a very definite policy and the work of the Board of Trustees of our State Sanatoria during the past five years, under the leadership of Dr. Arthur T. Cabot, has been carried on with this policy definitely in view. What we already have or are aiming at in this State is somewhat as follows:

1. A State sanatorium (Rutland) reserved for really incipient and favorable cases where the latest and best ideas of sanatorium treatment can be carried out.

2. Other State sanatoria, not far distant from the large centres of population (North Reading, Lakeville and Westfield) to which can be sent incipient consumptives should they prefer this to Rutland, and also moderately advanced and chronic advanced consumptives who have good chances of arrest and cure under real sanatorium treatment.



Sleeping Pavilion at the North Reading State Sanatorium.

3. A local municipal hospital in each city and town where advanced and dying consumptives can be isolated, cared for and made as comfortable as possible away from their homes and yet near to family and friends.

4. A tuberculosis dispensary in each city and town, provided with a sufficient number of trained nurses or social workers, who can direct patients as to home treatment while waiting to get into a sanatorium or hospital, who can help and advise the family after the patient has gone, and who can see that the patient carries on treatment, keeps under supervision, or has a suitable employment on his return.

5. A State sanatorium to which young children can be sent and given schooling while taking the cure (Westfield).



Children at the Westfield State Sanatorium.
(There are now over 65 under 15 years of age at this institution.)

6. More stringent enforcement of the law, which should regard the vicious, alcoholic and careless consumptive as a criminal and to be treated as such.

These, in my opinion, are the most important features of a very definite state policy. In addition to the above mentioned points there are, of course, many other lesser ones correlated with the above, such as factory and workshop inspection as carried on by the State health inspectors, a further employment of school and factory nurses, educational work by means of articles in the daily press, fresh air rooms, open air schools, etc. Along all these lines progress is being made. The outlook is a hopeful one. Despite the fact that our problem is radically different and more difficult than that of England and Germany, where the percentage of foreign born consumptives is slight compared to ours, which is nearly 50% of the whole, we are making a steady but sure advance. The medical profession must lead in creating a strong, sane public opinion which will bring about a keener appreciation of the absolute necessity of early diagnosis and prompt treatment of the incipient cases and the isolation and care of the advanced and dying consumptive.

PELLAGRA IN RHODE ISLAND.*

BY ARTHUR H. HARRINGTON, M.D., HOWARD, R. I.

The scope of this paper is purely historical and attempts to state, as far as the writer has been able to determine from the data available, the extent of the prevalence of pellagra in Rhode Island. The subject will first be considered under the head of Pellagra in Relation to the State Hospital for the Insane.

In the summer of 1910 a case of pellagra occurred among the patients of the State Hos-

* Read before the meeting of the National Association for the Study of Pellagra, at Columbia, South Carolina, Oct 3, 1912.

pital for the Insane. This was the first case which any of the medical staff connected with the hospital had ever seen and recognized at the same time. Following this more cases developed among our patients during the summer of 1910. We asked Dr. Gardner T. Swarts, Secretary of the State Board of Health, to see these first cases and he confirmed our diagnoses.

Between the summer of 1910 and the month of August, 1911, the symptoms of pellagra, gastro-intestinal and neurological, together with the well marked skin lesions appeared in 21 patients. Ten of these have died from the disease. These 21 cases have been made the subject of study by two of the hospital staff, viz. Dr. E. H. Cohoon and Dr. Frederick J. Farnell. The full report of these cases with that of the clinico-pathological work done by Dr. Farnell upon them will probably be published soon.

Subsequently to these 21 cases there appeared, between August, 1911, and October 1 of the present year eleven additional cases with two deaths. Thus we have had at the State Hospital for the Insane since the summer of 1910 32 recognized cases of pellagra with 12 deaths or a mortality of 37%. Of these 32 cases, 27 were women and 5 were men; all white. In none of the cases were skin lesions observed at the time of admission. Consequently the diagnoses were all made subsequently to admission. Four of the cases were admitted since Jan. 1, 1912, 4 in 1911, 2 in 1910, 2 in 1909, and the remaining 20 cases have been in the hospital for periods varying from 4 years to over 25 years. The longest residence in the hospital of any one of the cases, a case in which the disease appeared during the past summer, was 29 years.

In preparing this account of pellagra in Rhode Island an inquiry was started in order to ascertain if any evidence was obtainable as to whether any cases, unrecognized at the time, had ever existed in the State Hospital for the Insane previous to the appearance of our cases in 1910. Upon this point the following information has been gained. Dr. George E. Simpson, who has been connected with this hospital since 1905, states that a female patient in his service, who had been a resident of the hospital for five years, in the summer of 1908 developed skin lesions upon the hands. She passed rapidly into a cachectic state with diarrhea and died in a short time. Dr. Simpson now states that in the light of present information gained in observing our recent cases of pellagra, he has no hesitation in expressing his belief that this case was one of pellagra. He further states that he has a distinct recollection of seeing here a few other cases in the years between 1905 and 1910, probably as many as six at least, who presented the same picture as our recent cases now recognized as pellagrins. The skin lesions at the time caused considerable discussion among the members of the medical staff. While the lesions were looked upon as sunburns, yet even then that explanation did not seem satisfying. As pellagra was not known to have existed in Rhode Island that disease was not thought of.

In response to a communication which I addressed to Dr. Harry W. Kimball of Providence, Surgeon to the Department of the Skin, at the Rhode Island Hospital, I received the following reply which, with his kind permission, I insert here:—

"Dear Doctor Harrington:—

"In reply to your letter of 20th September, I would say that during my term of service as Intern at the R. I. State Institutions in 1891 and '92, I recall several cases in the Insane Hospital, that in the light of my present knowledge of pellagra, were undoubtedly cases of pellagra.

"Every Spring we would have a number of patients who were, as we then supposed, especially susceptible to sunburn, their hands, wrists and faces becoming inflamed, with usually more or less gastrointestinal disturbance; the type of sunburn being different from that which other patients, exposed to the sun under the same condition, presented.

"This we explained on the theory that they presented a peculiar tropho-neurotic susceptibility, thus causing a peculiar type of sunburn; the real fact being we were ignorant of the true nature of their disease.

"However, since seeing pellagra, I immediately recognized the disease that twenty one years ago I called tropho-neurotic sunburn, as pellagra. The number of patients with this condition, of course, I cannot recall, but there were several.

"I have had one case of pellagra on my service at the R. I. Hospital,—Dermatological Out-Patient Department,—and several suspected cases who failed to come back to the clinic.

"I am inclined to think that there are mild cases in Rhode Island that are not recognized or reported.

"Sincerely yours,

"Harry W. Kimball."

"26th September, 1912,
"276 Benefit Street.

From these data we have, I believe, unquestionable evidence that pellagra has existed among the patients at the State Hospital for the Insane as far back at least as 1891. The evidence seems to lead to the conclusion that for the years from 1891 to 1910 there were occasional cases of the disease, while from 1910 to the present date we have had an approach, at least, to an epidemic of pellagra.

I will next consider Pellagra in Relation to Other State Institutions at Howard. Dr. Henry A. Jones, the resident physician of the State Almshouse, State Workhouse and House of Correction, has observed five cases of pellagra in inmates of these institutions, four being males and one a female. I am indebted to Dr. Jones for the privilege of studying the records of his cases and also for the opportunity of seeing some of them with him. In the summer of 1910 Dr. Jones believed that he had a case of pellagra under his care. His diagnosis was confirmed by

Dr. Gardner T. Swarts. This patient died of the disease July 11, 1910. This is the first case of which we have any record in Rhode Island, in which the disease pellagra was recognized as such, at the time, and it is the first instance in our State in which pellagra was entered as the cause of death. Of the remaining 4 cases, who came under the care of Dr. Jones, 3 have subsequently died. Dr. Jones, therefore, up to the present date, Oct. 1, 1912, records 5 cases with 4 deaths.

Finally, I will consider Pellagra in Rhode Island in Relation to the Community at Large. The first consideration under this inquiry was as to whether any of the cases of pellagra seen at the State institutions named above appeared to have the disease when admitted. Of the 32 cases seen at the State Hospital for the Insane since the year 1910, there was not a single case in which the skin lesions were present when the patient was admitted and no evidence could be gathered to indicate that any one of these cases had at any previous time exhibited the skin lesions. Twenty-nine of these cases had been in the hospital for periods varying from 5 months to over 25 years before the symptoms of pellagra were observed in them.

As a matter of record I will cite certain facts in relation to the remaining 3 of our 32 cases:

C. B. admitted May 10, 1912, showed the skin lesions on July 12th following. Mental symptoms were said to have appeared one week before admission. This patient has become demented quite rapidly and has also developed well marked neurological symptoms.

L. B. admitted March 18, 1911. Mental symptoms preceded admission by one month. On admission patient exhibited depression, restlessness and confusion. Diarrhoea followed two weeks after admission. Skin lesions appeared six weeks after admission. A second appearance of skin lesions appeared eight months after admission. The skin lesions this time were bullous and dark brownish-red. She then had convulsions, choreiform movements and died, death occurring nine months after admission and ten months after the beginning of mental symptoms.

C. M. admitted July 20, 1912, showed typical skin lesions eleven days later.

In looking back over the case of patient L. B., the short onset of the mental symptoms previous to admission, the diarrhea following two weeks after admission, the appearance of skin lesions in six weeks, their recurrence, the neurological symptoms and death from the disease: all have the appearance of belonging, from the first, to the disease pellagra. If so, she came from the community to the hospital bearing the disease.

There is room for suspicion that C. M., who showed the skin lesions eleven days after admission, had the disease when he entered the hospital for the reason that so short time elapsed between admission and the appearance of the skin lesions. His psychosis, however, appeared to be an alcoholic one, so that no connection can be traced between the mental symptoms and pellagra.

In C. B. the skin lesions appeared eight weeks after admission. We have diagnosed this case mentally as general paralysis.

We shall never know the incubation period of pellagra until we learn its cause; consequently, while the facts in these three cases may make us strongly suspicious that they were pellagrins when they entered the hospital, that seems as far as we can go at present. Two of Dr. Jones' cases, however, afford positive evidence that they were the victims of the disease before their admission to the State Almshouse. Both were residents of Rhode Island and had not previously been at any time at any one of the State institutions. One of the cases gave a clear history of the onset of the disease, with skin lesions, and other concomitants of the affection, for a period of five months previous to admission. This case terminated fatally. The second of these two cases entered the State Almshouse, coming directly from the Rhode Island Hospital, from the service of Dr. Gardner T. Swarts, where the diagnosis of pellagra had already been made. This case also terminated fatally.

I am also permitted to refer to another case diagnosed as pellagra that was admitted to the Rhode Island Hospital. M. B., a woman, age 55, a resident of Providence, also a patient in the service of Dr. Swarts.

I was invited recently by Dr. Jones to see a young woman whom a physician had brought to him for consultation, being suspicious that she was a pellagrin. This patient was 25 years of age and had resided in the Pawtuxet Valley for six years, coming there from Canada. Skin lesions had first appeared two years ago and were typical of the chronic branny variety. Of late the general health was beginning to be markedly impaired and she was evidently suffering appreciably from the toxic effects of the disease.

From these four cases and the additional case mentioned by Dr. Kimball as having been seen in the Out-Patients' Department at the Rhode Island Hospital, I feel that there is positive evidence that pellagra is existent in the community at large in the State of Rhode Island, to some extent at least.

The following is a summary of the above:—

First. Pellagra has existed at the State Hospital for the Insane at Howard, R. I., at least since 1891.

Second. Taking all the cases since the summer of 1910, of all the State Institutions at Howard of which we have definite record, the total number is 37 with 16 deaths, or a mortality of 40.5%.

Third. Pellagra is not confined to the locality of the State Institutions at Howard, but it also exists in the community.

Reports of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

THIRTY-SEVENTH ANNUAL MEETING HELD AT BALTIMORE, MARYLAND, MAY 28, 29 AND 30, 1912.

THE PRESIDENT, DR. HOWARD A. KELLEY, OF BALTIMORE, IN THE CHAIR.

(*Continued from page 622.*)

THE INFLUENCE OF MYOMATA ON THE BLOOD SUPPLY OF THE UTERUS WITH SPECIAL REFERENCE TO ABNORMAL UTERINE BLEEDING, BASED ON THE STUDY OF 150 INJECTED UTERI CONTAINING THESE TUMORS.

DR. JOHN A. SAMPSON, of Albany, New York, stated that in 52 specimens colored injection masses were used, and in 98 either the arterial or venous system was injected with a mass impervious to the x-ray. Stereoscopic radiographs were of great value in this work. All specimens were studied with a knowledge of the age of the patient, and, before the menopause, the exact stage of the menstrual cycle. The arterial and venous supply of the uterus and of myomata had been described in a previous paper. The influence of these tumors on the circulation of the uterus was of much greater clinical importance than the blood supply of the tumors themselves.

Menstruation was found to be due to a venous flow and depended upon changes in the walls of the venous plexus of the endometrium, permitting the blood to escape. There were not any valves in the uterine veins, so that the amount of blood lost was regulated in a large measure by the efficiency of the uterus to hold it back, and especially its muscular efficiency.

Large subserous myomata were very vascular and caused an hypertrophy of the uterine artery from which its nutrient vesels arose and thus more blood was carried to the uterus and tumor; the excess over the normal was diverted to the tumor. The chief arterial and venous changes were in the peripheral zone of the uterus and menstruation was usually not altered.

Small intramural myomata were less vascular than the myometrium, and usually did not alter menstruation, but might possibly sometimes cause uterine insufficiency with its accompanying menorrhagia or metrorrhagia. Large intramural myomata were more vascular than the myometrium, but less vascular (venous).

Submucous myomata represented a later stage of the intramural variety, and the veins over the surface of these were more apt to be affected than in the intramural variety.

Adenomyomata did not necessarily disturb menstruation, and the endometrium over them was usually atrophied.

DISCUSSION.

DR. WILLIAM S. STONE, of New York City, said he had now 24 patients whom he saw at a period when they had no visible tumor or fibroid he could appreciate. He had seen these patients subsequently when they had fibroid tumors and other kindred conditions. In connection with the clinical study of these cases a few of them had been accompanied by careful histological examiniations. It had led him to the suggestion which Dr. Sampson had referred to as explaining a great many cases of hemorrhage at the time of the menopause, and the theory was satisfactory and rational as applied to the causes of hemorrhage in girls at puberty, and among them muscular insufficiency. Those changes had not occurred that ordinarily occur in connection with the adult uterus. With muscular insufficiency, a great many of these cases which were spoken of clinically as well as infantile, did not have enough muscular tissue in them to keep proper control of the blood supply which Dr. Sampson had demonstrated.

A FURTHER REPORT ON THE RELATION OF THYROIDISM TO THE TOXEMIA OF PREGNANCY.

DR. GEORGE GRAY WARD, New York City, summarized the present status of the toxemias of pregnancy of this type as follows: 1. That these cases may be classified into two groups: (a) Cases having no Graves' Disease, but without sufficient thyroid secretion to promote the increased metabolism in the liver made necessary by the pregnancy, and probably due to the failure of the thyroid to hypertrophy. (b) Cases associated with Graves' Disease which condition usually caused serious disturbance in the metabolism. 2 Toxemias of the first group were frequently benefited by the administration of thyroid substance in the form of either dry extract or a serum. 3. In toxemias of the second group, it was essential to determine whether the Graves' Disease was in a condition of hyperthyroidism or hpothyroidism. If the former, rest, applications of ice, milk diet, and sedatives, should be employed, and if these measures failed, an antiserum, such as the cytotoxic serum of Beebe and Rogers should be administered. If the latter, thyroid substance should be given in the form of the dry extract, or, what was more efficient, if possible to obtain, a saline extract prepared from normal human glands, for hypodermic administration. 4. Reliance should be placed upon nitrogen partition of the urine as a guide to the severity of the toxemia rather than on the blood pressure. 5. Induction of labor was very slow and uncertain in these cases, and where the history of former labors was that of dystocia, elective Cesarian section was probably the safest method of delivery for both mother and child.

THE TREATMENT OF ACUTE AND FULMINANT TOXEMIA.

DR. EDWARD P. DAVIS, of Philadelphia, said that each case of toxemia of pregnancy must be studied by a thorough physical examination, and that undue importance could not be assigned to any one symptom. One fact stood out preëminently in all fatal cases of toxemia of pregnancy, and that was the disorganized state of the blood, the minute hemorrhages in the liver and other organs, and in those patients in whom fulminant toxemia lasted for some time the occurrence of pulmonary edema and of gangrenous pneumonia. Whatever we could do in the way of treatment must be addressed to avoiding these conditions.

The value of milk as a prophylactic diet must be insisted upon. The prevalent desire for fresh air should also be encouraged. A thorough physical examination should give warning of the approach

of fulminant toxemia. Great variations in pulse tension, disturbance of the nervous system, inability to retain nourishment, disordered secretion and excretion, and variation in the nitrogenous output of the body, as demonstrated by the nitrogenous partition of the urine, were all of paramount importance. Should the conditions be unfavorable for spontaneous delivery, and the uterus make an effort to expel its contents, he believed that rapid delivery by abdominal section was the operation of choice. He preferred this to vaginal section because it was free from mechanical difficulties, and did not open the veins above the pelvis and lower portion of the birth canal.

THE TREATMENT OF ECLAMPSIA.

Dr. Franklin S. Newell, of Boston, stated that since the etiology of eclampsia was unknown the treatment must be symptomatic and empirical. Until the physiological chemist found the causative agent treatment must be directed towards limiting the amount of the toxin which was absorbed, in the first place; second, the prevention of damage by the toxin already absorbed; third, elimination of the toxin, and fourth, treatment of the patient. Limitation of absorption of toxins was only to be accomplished by ending the pregnancy. The method of dilatation of the cervix and operative delivery must be chosen to suit the needs of the individual patient and operative skill of the obstetrician. Slow methods of dilatation were not to be advised. Damage by toxins already absorbed should be prevented, and control of convulsions by the free use of morphia to the point of slowing respirations to 12 per minute. Lowering of blood pressure to approximately normal point by venesection in order to reduce the strain on the heart. As to the elimination of toxin, free catharisis induced by the use of saline and croton oil in repeated doses should be undertaken until several watery movements had resulted. The lower bowel should be washed out by colonic flushing. Probably most of the toxin was excreted by the intestinal tract, and if it was not removed might be reabsorbed and cause a recurrence of symptoms. The patient must be treated in certain cases and the disease allowed to care for itself, since it was evident in certain cases that any active interference would cause the death of the patient, and the only hope lay in palliative means. In these cases and in patients who had reacted badly to operative procedures, direct transfusion of blood should be considered as a possible life-saving procedure.

THE TREATMENT OF ECLAMPSIA.

Dr George Tucker Harrison, of Charlottesville, Virgina, said that whatever be the nature and origin of the toxic substance which evoked the phenomena characteristic of eclampsia, two facts stood out in clear light. In the first place, the potency of the poison that produced the toxemia was made manifest by the degenerative changes in the kidneys, the anemia and hemorrhagic necroses in the liver, the hemorrhages into the brain, and mutliple thrombosis. In the second place, the undoubted fact that, as a rule, the evacuation of the contents of the uterus was attended by a speedy relief of the symptoms—*restitutio ad integrum*. Bearing in mind these facts, it was logical to maintain that in cases of acute toxemia in pregnancy, whether with or without eclamptic attacks, the indication of treatment was to empty the uterus as speedily as may be. If the cervix was dilatable or dilated, either by manual dilatation or by the use of the metreuynter, but not by metallic dilators, sufficient dilatation might be obtained, so that version and delivery might be accomplished in a short time. Forceps should be applied only when the head was fixed in the pelvis. In a primipara, when the cervix was maintained in its entire length, the indication was vaginal Cesarean section.

THE INDICATIONS FOR AND THE TYPE OF OPERATION TO SELECT IN THE TOXEMIA OF PREGNANCY.

Dr. John O. Polak, of Brooklyn, New York, drew the following conclusions: 1. That toxic vomiting which resisted rest, lavage, dextrose enemata, enterocleisis, and presented a high ammonia ratio, or persistent acetone, a total white cell count of under nine thousand, and a maternal pulse of 100 or more, should have the pregnancy interrputed. 2. Before the formation of the placenta, the curette was the method of choice, and after this period anterior hysterotomy offered decided advantages. 3. The pre-eclamptic state, characterized by its high blood pressure, diminished urinary output, persistent albuminuria, etc., not yielding to dietetic, eliminative and medicinal measures, justified evacuation, and that surgical methods in skilled hands did less injury, and had a lower mortality and morbidity than the less radical procedures. 4. When the convulsions and coma had occurred, the termination of pregnancy improved the chances of the patient's recovery, and that the method of delivery depended on the condition of the cervix, which determined whether it be by incision, bag or nature, supplemented by version or forceps. Finally, anterior hysterotomy should always be the choice over manual dilatation, where no effacement of the cervix had taken place.

TREATMENT OF ECLAMPSIA.

Dr. Cyrus A. Kirkley, of Asheville, pointed out that prophylaxis was the more satisfactory treatment in the toxemia of pregnancy. Indefinite treatment was due to obscure etiology. Renal and hepatic insufficiency were probably the main etiological factors.

Symptomatology was briefly discussed and the tity of urea excreted rather than the presence of albumin determined the proper course of treatment. To eliminate accumulated toxins, and to restore impaired or arrested function in the eliminative organs, was the aim of treatment. Calomel and soda, followed by salines, alkaline diuretics, if not contra indicated, the hot pack, the hot air bath, glonoin, massage, pure air, and abundance of pure water were important aids in treatment. Venesection, if not contraindicated, both as a prophylactic and during and after the eclamptic seizure, was strongly endorsed. Chloroform and morphin were in disfavor. Veratrim viride was second only to venesection as an antieclamptic, but was in no sense a substitute. Decapsulation of the kidney had a doubtful place in the treatment of eclampsia, but thyroid extract might be useful as a prophylactic.

The uterus should be emptied as soon as it could be done without increasing the risk to the mother. Should labor not begin with the first seizure, and if the internal os uteri was obliterated, dilatation and delivery by forceps or podalic version might be accomplished.

The indications for Cesarean section were pointed out, but too radical as well as too conservative treatment might result disastrously. While Cesarean section should not be the *dernier* resort, we should be absolutely sure that delivery by other means was impossible.

DISCUSSION.

DR. REUBEN PETERSON, of Ann Arbor, Michigan, stated that as long as the prophylactic treatment could be carried on and the patient was improving, it was the duty of every obstetrician to carry it out. If the patient, however, failed to improve under the prophylactic treatment, then came the question of what to do, and he maintained with Dr. Polak and with Dr. Harrison that the best method was to empty the uterus as quickly as possible. If the cervix was dilated so that one could with a little more than manual dilatation deliver the woman, this should be done. If the cervix was rigid, it was a good deal better rather than spend considerable time in dilating the cervix to make a vaginal Cesarean section.

In regard to the fetal mortality, the fetal mortality of abdominal Cesarean section should be far less than vaginal Cesarean section. The mortality of vaginal Cesarean section in 530 cases was 21.2 per cent.; the fetal mortality in 421 abdominal sections was 5.9 per cent., so that the last word had not been told in regard to the method of emptying the uterus in the presence of eclampsia.

DR. BARTON COOKE HIRST, of Philadelphia, had been using the parathyroid extract for five or six years, and he believed that in the rare types of toxemia he got better results than from the thyroid extract itself, but those toxemias that required parathyroid treatment were rare; they constituted only a small minority of the cases of toxemia seen in practice.

He felt strongly opposed to Dr. Harrison's unqualified advocation of the operative treatment, and he thought the society ought to carefully consider its responsibilities to the general profession. In the United States there were 7500 cases of eclampsia every year approximately. Of that number, the vast majority were attended by the general physicians, and if the doctrine went forth from the society to the effect that the unqualified treatment of toxemia and eclampsia was the operative treatment, it would do a vast deal of harm.

DR. RICHARD C. NORRIS, of Philadelphia, stated that his last thirty cases of toxemia occurred during the period when vaginal Cesarean section had been discussed by the profession. Of these cases there were 13 actually eclamptic women who had had 42 convulsions; there were 17 pre-eclamptic cases past the seventh month of pregnancy. This group of cases was treated by the conservative plan—cases that in his judgment did not require the aggressive operative methods, yet one woman died without eclampsia from a widespread accumulation of fluid in the serous cavities, chronic Bright's disease, and none of the infants died, most of them being premature. He felt sure, if he had subjected every one of these women to vaginal Cesarean section he would not have had better results. He believed the time had come for us to attempt to study individual cases, and properly classify them.

DR. J. WHITRIDGE WILLIAMS, of Baltimore, said that when it was essential to empty the uterus for vomiting of pregnancy, vaginal hysterotomy or Cesarean section was the method, and he had employed it for some years. As to the method of emptying the uterus in cases of eclampsia, it was very essential to individualize, but he believed in every case, where the cervix was rigid and where prompt delivery was necessary, vaginal Cesarean section was the operation of choice. He had employed this operation in a large number of cases with great success and great operative satisfaction.

DR. CHARLES M. GREEN, of Boston, said that if we were going to be of the greatest service to womankind in this matter of pregnancy toxemia, steps must be taken to get at the cases early. He happened to have had considerable experience this winter as the result of a pregnancy clinic they had been running in Boston since a year ago last May, and the result had been a considerable diminution in the number of cases of actual eclampsia, that is, women who went on to the point of having fits. They got these patients in all periods during pregnancy, not only when they presented themselves at the clinic, but when found by the visiting nurse, who was sent to keep track of these women when they presented symptoms of toxemia of pregnancy. As the result of this work they had had no cases of eclampsia. He did not seem to say by that that none that ought to be delivered had not been delivered, but they had found by putting these patients under the usual eliminative treatment, very often labor began and they delivered themselves and recovered without ever having convulsions, so that he was firmly of the belief that we should get better results, less actual eclampsia to treat, if we took steps in our clinics to get control of these women early.

DR. HENRY D. FRY, of Washington, D. C., said he was never satisfied to empty the uterus until he had tried one remedy which had served a good purpose in the treatment of the early stage of eclampsia. After putting the woman to bed and taking off all food by the stomach and giving nutrient enemata, he used inhalation of oxygen, and if he could not stop pernicious vomiting he was satisfied he should empty the uterus.

He had made it a routine practice in the later months of pregnancy to examine the thyroid glands of all women and if they did not have physiological enlargement of the thyroid at that time, if they had restlessness, sleeplessness, indigestion, he put them on thyroid extract, and had seen the symptoms disappear. He had seen the nitrogen output increase and this did good in a certain class of cases.

DR. GEORGE W. KOSMAK, of New York City, by invitation, said the term eclampsia was a misnomer in the class of cases to which it was generally applied. We had called a disease entity the toxemia of pregnancy by one of its prominent symptoms, but in a great many cases this prominent symptom did not appear. There were a great many cases of toxemia of pregnancy in the late months that did not have convulsions; some of them got over the toxemia, and some of them terminated fatally.

At a meeting held in Atlantic City several years ago Dr. Welch showed specimens from a series of four cases. They were brains and livers from each of these women, two of whom had convulsions and, died as the result of toxemia, while the other two never had any convulsions, but passed meconium. Therefore, it was not fair in the treatment of these cases to assume that convulsions were the deciding factors, and this was why he personally objected to basing a series of statistics on the presence of convulsions.

Dr. Hugo Ehrenfest, of St. Louis, Missouri, referred to venesection in the treatment of eclampsia and pregnancy, and said it was an interesting fact that of late venesection had been suggestd and recommended by many men. Many of these cases, he thought, were spoiled by the introduction of saline solution. One never knew when saline solution might prove detrimental to the patient, but the withdrawal of a large amount of blood worked approximately the same way as forcing delivery. According to investigation, the true effect and force of saline solution lay in the loss of blood.

No matter what method of treatment was resorted to in these cases, the patient should be put into a hospital, and all statistics based on hospital experience in treating these cases. This should be one of the first points in any therapeutic effort. The majority of patients suffering from the toxemia of pregnancy could be brought into a hospital. He thought it was unsafe to resort to operative measures amid unfavorable surroundings. Conservatism should always be kept in mind in dealing with this class of patients.

(To be continued.)

Book Reviews.

Insomnia: Its Causes and Treatment. By Sir James Sawyer, M.D., F.R.C.P., London. Second edition, with many revisions and additions. Birmingham: Cornish Brothers. 1912.

The first edition of this book, published eight years ago, consisted of the first two chapters of the author's "Contributions to Practical Medicine," reprinted in monograph form. In this present second edition these two chapters have been worked over and amalgamated with much new clinical material, and to them have been added a third chapter from the latest edition of the "Contributions" "as a summary of the practical side of the whole subject," and "an index of the matters dealt with." The author's style, as well as his substance, makes his work one of attractive and useful originality.

Methods of Organic Analysis. By Henry C. Sherman, Ph.D., Professor of Food Chemistry in Columbia University. Second edition, rewritten and enlarged. New York: The Macmillan Company. 1912.

The author in this work has presented in a clear yet abbreviated form the numerous methods for the analysis of many substances like fats, vinegar, butter and milk, falling to the participation of the food chemist, as well as drying oils, lubricating oils, fuels, soap and glycerine, which naturally come within the province of the commercial chemist. The work is well done but a question arises whether this union of the two branches is a wise one and whether a separation of these fields might not be more desirable. As a compilation of methods from which you pay your money and take your choice, the aggregation is an excellent one but as a guide to the worker it would seem that a more limited number of methods with an expression of preference on the part of the author for the method or possibly methods which he has found most practical and valuable would be more in order. In the notes, however, which follow each method and which presumably are drawn from the author's own experience, many hints are given as to the errors to be avoided and, roughly, it may be concluded that the method containing the least opportunities for error would be the best to employ, accuracy remaining equal. While the Mett method of determining the proteolytic activity of pepsin is given in full, it is to be regretted that the method of Fuld for the determination of trypsin is not given, on account of its simplicity and adaptation to clinical work, as well as on account of the importance of testing the maintenance of the functions of the pancreas by examination of the duodenal contents which came through the pylorus after the oil meal. The book ends with an excellent chapter on food preservatives in which methods of detection are given in full. On the whole, it is a book which will adapt itself very well to the needs of national, state and city laboratories having food control as one of their functions; such a book as one would wish to have on his desk beside him in the laboratory for ready reference.

Gonococcal Infections. By Major C. E. Pollock and Major L. W. Harrison, Royal Army Medical Corps. London: Henry Frowde, and Hodder and Stoughton. 1912.

Tuberculin Treatment. By Clive Rivière, M.D. (Lond.), F.R.C.P., and Egbert Morland, M.B. and B. Sc. (Lond.), M.D. (Berne). London: Henry Frowde, and Hodder and Stoughton. 1912.

These two volumes in the series of Oxford Medical Manuals deserve more than passing notice.

The first is a concise clinical treatise on gonorrhea, well-written, sane and dispassionate. The authors point out that the disease could be easily eradicated from the world if all persons would practice continence until marriage and avoid extra-marital relations after; but they remark that "unfortunately this highly desirable state of affairs is not likely to take place in the near future." They, therefore, advocate the use, by those who choose to indulge in promiscuous intercourse, of protective agents, such as condoms or the gonococcidal substances. They quote particularly the good results obtained in the German and in the American navy by the latter method of venereal prophylaxis. The treatment of the various forms of existing infection in both sexes is fully outlined and embodies the most approved principles. The book should be of particular value to students and practitioners.

The second volume, by Rivière and Morland, is an elaborate treatise on tuberculin treatment in its various modes of application. It therefore discusses the general lines of tuberculin administration, Koch's method of immunization with

tolerance, and Wright's method of immunization without tolerance. The former method the authors consider indicated for auto-toxic tuberculosis, the latter for localized tuberculosis. The details of technic are given in full, and the indications discussed. The work is illustrated with an excellent series of 27 charts and supplemented by an admirable alphabetic bibliography of over 200 titles. It is a compendious exposition of a method of treatment that is unfortunately too little understood. It should be read particularly by those inclined to be skeptical of the value of tuberculin therapy.

Pellagra. History, Distribution, Diagnosis, Prognosis, Treatment, Etiology. By STEWART R. ROBERTS, S.M., M.D. With 89 special engravings and colored frontispiece. St. Louis: C. V. Mosby Company. 1912.

Until the publication of this volume there were but two English works on pellagra; the first being Lavinder's and Babcock's translation of Marie's French monograph (reviewed in the issue of the JOURNAL for Feb. 23, 1911, Vol. clxiv, p. 274), and the second being Niles's book (reviewed in the issue of the JOURNAL for May 30, 1912, Vol. clxvi, p. 822). Roberts's treatise is intended primarily for students and practicing physicians. It is essentially a clinical exposition of the disease, and is not concerned particularly with etiologic speculation. The author, however, is inclined to the belief that pellagra is an infection rather than an intoxication. His work, therefore, is a peculiarly valuable complement to that of Niles, who maintains the opposite view. It is especially to be commended for its excellent illustrations, and forms a useful and important addition to the growing literature of the subject.

Manual of Surgery. By ALEXIS THOMSON, F.R.C.S. (Ed.), AND ALEXANDER MILES, F.R.C.S. (Ed.). In three volumes. Fourth edition. Revised and enlarged. Edinburgh, Glasgow and London: Henry Frowde and Hodder and Stoughton. 1911-12.

These three volumes in the series of Oxford Medical Publications, constituting the fourth edition of a well-known manual of surgery, maintain admirably the deserved high reputation of the original work. In preparing this new edition, the authors have not materially altered the general arrangement, and have adhered to their "plan of endeavoring to furnish a systematic view of the present-day aspects of surgery in sufficient detail to render it useful to the practitioner, without at the same time carrying it beyond the scope appropriate to a manual for students."

The first volume, which is illustrated with 297 figures in the text, deals with general surgery, in 30 chapters, under the customary captions and sub-divisions. In this edition, the section on deformities of the extremities has been very properly transferred to the second volume, which deals with regional surgery, in 37 chapters, with 274 illustrations. Many of the old wood cuts in the previous editions of these two volumes have been replaced by process blocks, and a large number of new illustrations has been added. Particularly to be commended are the sections on surgical anatomy prefixed to the consideration of each tissue or region concerned. The third volume, on operative surgery, is new in this edition, to which it has been added to furnish a detailed description of operative procedures. It has forty chapters and 220 illustrations, and is printed in larger type than the two other volumes. There are excellent indices in each volume.

The entire work furnishes an admirably complete and compact treatise on the theory and practice of modern sugrery.

United States Naval Medical Bulletin. Vol. 6. No. 3. July, 1912. Washington: Government Printing Office. 1912.

This issue of the quarterly naval medical bulletin is chiefly interesting for its two leading special articles on leprosy. The first, by Dr. W. M. Kerr, consists of notes on 24 cases as they occurred in the Tumon leper colony at Guam, Marianas, during the months of October and November, 1911, with 24 admirable illustrative full-page plates. The second, by Dr. G. F. Cottle, consists of a series of 24 photographs of lepers, taken by Dr. J. T. Wayson at the Kaliki receiving station for lepers at Honolulu, Hawaii, with comment thereon. These two articles afford a particularly valuable descriptive portfolio of illustrations of the clinical symptomatology of this important though uncommon disease.

Principles of Economic Zoölogy. By L. S. DAUGHERTY, M.S., Ph.D., and M. C. DAUGHERTY. With 302 illustrations. Philadelphia and London: W. B. Saunders Company. 1912.

This volume aims to provide for students a single book which shall "give not only the salient facts of structural zoölogy and the development of the various branches of animals, but also such facts of natural history as to show the interrelations of structure, habit and environment." In a succession of chapters the entire animal kingdom is passed in review, from the protozoan rhizopods to the mammalian primates, with brief but adequate description and abundant pictorial and textual illustration. There follows a chapter on theories of development, a geologic plate illustrating vertebrate life in America, and a glossary of technical terms. The book affords a valuable and compact epitome of the facts of zoölogy, and at the same time presents an illuminating systematic survey of the ontogenetic and phylogenetic relationships of the various forms of animal life. It is a work which should fill a useful place in zoölogic literature both for the student and for the general reader.

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THE NATIONAL COMMITTEE FOR MENTAL HYGIENE.

IN the issue of the JOURNAL for Aug. 22, discussing the relation of immigration to insanity and feeble-mindedness, we, in a general way, assumed the attitude that the treatment of the actually insane is upon a fairly satisfactory basis. We cited the pioneer efforts of Phillippe Pinel in France following the French Revolution, and the later reforms instigated by the English Quakers led by William Tuke, which paved the way for the work of Dr. John Connolly who finally succeeded in firmly establishing the principle that the insane should be treated without mechanical restraint or seclusion.

While in our opinion prevention is still the greatest factor in the problem of insanity, humanity and justice demand that the reforms in treatment instituted over 100 years ago should not be hampered in their legitimate growth by placing undue stress upon the purely scientific aspects of the question. That these reforms have in reality made surprisingly little headway considering the great length of time that their necessity has been almost universally admitted, may be inferred from a resumé of the subject by Dr. Thomas W. Salmon in the *New York Medical Journal* of Nov. 2. From this article we learn that although the care of the insane may be a matter of just pride in a few enlightened states, there is nevertheless not a single condition which existed in the early period of neglect and abuse which does not survive today in some American community. It appears that there is a lack of uniformity in the various states as to their treatment of the insane. Thus, although care in county almshouses has been abolished in most communities, it still exists in some form in fourteen states. Some states provide a complete system of care for all classes of insanity. Others expressly provide that no state hospital shall be used for the care of the incurable. In some states when mental disease complicates the course of an acute illness, the patient can be immediately transferred to a suitable hospital where treatment may be begun which will restore him to health at the same time that his legal rights are entirely safe-guarded by the provisions of the emergency commitment. In another state separated from the first by only an imaginary line, a similar patient would have to have the charge of insanity preferred against him by a near relative, and in spite of his severe illness be haled into court and there tried by a jury of his peers before he could receive the institution treatment which the exigencies of his case so peremptorily demanded.

In commenting upon these widely divergent methods of treating the same class of persons Dr. Salmon remarks as follows: "Suppose similar conditions prevailed in the legal status of other sick persons. Suppose the treatment of diphtheria were determined by state lines, it being legal to use antitoxin in one while in another this remedy was prohibited by law. Suppose that in one state tuberculosis were treated by life in the open air, rest and good food, while the 'policy' of another state made such treatment impossible. Suppose that typhoid fever were a disease in one state and a felony in another. Suppose that surgical operations were performed in one state with anesthetics and aseptic precautions, while in another operations were performed in accordance with the usages of 1712. These suppositions are obviously ridiculous but they are scarcely more absurd than the actual difference in the care of the insane."

The movement to correct these abuses is now well started. Connecticut organized a society for mental hygiene four years ago, and in 1910 the Illinois Society for Mental Hygiene was established. In New York the State Charities Aid Association has a Committee on Mental Hygiene which performs functions similar to those of the Illinois society. But the care of the insane should be a national rather than a state problem. It is a realization of this fact which led to the

[1] Thomas W. Salmon, U. S. Public Health Service. The Problem of Treating the Insane. Address delivered at the Meeting of the National Association of Public Relief Association, Cleveland, Ohio, June 12, 1912. Published in the *New York Medical Journal*, November 2, 1912.

recent organization of a National Committee for Mental Hygiene. This committee has carefully mapped out a line of investigation which includes a national survey of all existing state laws relative to insanity and a minute examination of the actual conditions of the insane in every institution in the United States. The work has been made possible by the gift of $50,000,000 from an anonymous philanthropist. The data once collected and all the necessary information at hand the committee will feel that it is in a position to speak authoritatively and begin a vigorous campaign to improve the lot of the insane throughout the United States.

The National Committee for Mental Hygiene is already actively engaged in the educational propaganda which aim to prevent the causes of insanity at the same time that it is eagerly collecting data which will enable it to compel uniform legislation for the amelioration of the condition of those who are actually insane. Being thus both euthenic and eugenic in its scope and aims it would seem that it should have the unqualified support of all persons who have the betterment of the race at heart, for it embodies in an unusual degree the qualifications of pure philanthropy with those of scientific research.

THE HISTOLOGIC MECHANICAL LESION OF PERTUSSIS.

THE issue of the *Journal of Medical Research* for November, 1912, contains the report of an important piece of research by Drs. F. B. Mallory and A. A. Hornor on the histologic lesion in the respiratory tract in pertussis.

In 1900 Bordet and Gengou discovered in the sputum from cases of pertussis a bacillus, which they obtained in pure culture in 1906, and which has since been generally accepted as the etiologic agent of the disease. Their results were further confirmed in 1908 by Khinenko, who succeeded in producing with this bacillus a similar disease in monkeys and puppies, from whom he obtained the organism again in pure culture, and whose blood gave the characteristic complement-fixation test. None of these investigators, however, had determined the exact lesion produced by the disease on the respiratory mucous membrane.

From a microscopic study of tissues from three patients who died of pertussis, Mallory and Hornor have now been able to demonstrate that this lesion consists in the accumulation of large numbers of bacilli between the cilia of the epithelium lining the trachea and bronchi. The lesion, which is apparently peculiar to the disease, presumably "interferes seriously with the normal ciliary action and thus with the removal of secretion and of inhaled particles, in consequence of which the lungs must be more exposed to infection by inhalation than under ordinary circumstances." This would explain the frequent liability to bronchopneumonia as a complication, and probably offers a mechanical explanation of the characteristic whoop, a symptom due to spasm from the continuous irritation.

It remains definitely to identify Mallory's bacillus with that of Bordet and Gengou, or to obtain the true causal agent and test it in the same manner. Experiments to this end are now in progress.

The work of Mallory and Hornor, though not yet completed, has nevertheless been already carried sufficiently far to constitute it an original, scientific contribution of great merit and value. Its ultimate demonstration should serve to determine the true etiology and explain the exact mechanical lesion of pertussis, and very likely to suggest means for relieving and controlling the symptoms and effecting the early cure of this very serious disease.

PESTILENCE AS A FACTOR IN THE BALKAN WAR.

DURING the past week a new element has appeared to influence the course of the Balkan War, namely that of pestilential disease. Asiatic cholera has broken out in Constantinople, now nearly beset by the converging forces of the victorious allies, and also among the Turkish troops in the field. The lack of medical preparation, and the naturally unhygienic habits of the native Turks make it likely that the infection will spread and cause an alarming mortality. Nine hundred and thirty cases of the disease are reported to have died in one day in the Turkish camp at Hademkeni. The number of new cases in and around Constantinople is said to be 1000 daily, with a death-rate of 50%.

The city is much overcrowded with peasant refugees from European Turkey, several thousand of whom are being transferred daily to Asiatic ports, very possibly to start new foci of infection there. All the hospitals are overflowing, and the government is preparing a special quarantine with 4000 beds at Sirkeji. There are

said to be about 75,000 sick and wounded of various races now in the field and needing medical care. As yet the cholera has not appeared among the allies, who seem to be intelligently aware of their greatest risk, and to purpose avoiding an entry into Constantinople as long as the disease is there prevalent. The pestilence, always until the latest days of modern enlightenment deemed an inevitable accompaniment of war, is still far more to be dreaded than the sword, and in this instance seems likely to fight more efficiently for the fleeing Turk than his own armies. It is not the first time that epidemic disease has played an important part in determining the course of human emprizes.

INOCULATION AGAINST PLAGUE AND CHOLERA IN INDIA.

An item in the issue of the *Medical Press and Circular* for Nov. 6 comments on the striking results obtained by inoculation against bubonic plague in the Bombay Presidency and against Asiatic cholera in Calcutta, as evidenced by statistics from the official reports for 1911.

"During the year the number of persons inoculated against plague was 93,655, as against 30,635 in 1910. Of this total 32,047 were inoculated in the Dharwar district, the worst affected in the Presidency. Eighty-one cases were reported among persons who had been inoculated, of which 38 proved fatal. But among the latter cases 36 were apparently in the incubation stage at the time of inoculation, the disease having been contracted before the serum had time to react. Of the remaining two cases, one developed plague after one month and the other after two months. As showing the relative immunity to plague of inoculated persons the following figures relating to the town of Bijapur, which were checked by the Civil Surgeon, are instructive: Among 2,742 inoculated there occurred 20 attacks, with 3 deaths; among 30,258 uninoculated there occurred 1,695 attacks with 1,150 deaths. Similar comparative figures were reported from many towns and villages, the mortality being everywhere unmistakably controlled by inoculation. In one village 75 per cent. of the population of 450 were inoculated. About two months later dead rats appeared, showing the presence of plague infection, but no cases of plague occurred. Cholera statistics from Calcutta likewise show striking results. In the Campbell Hospital 232 cholera cases were treated, a large number of them by Major Rogers' method, and no fewer than 141 recovered. Major Rogers, in charge of the Medical College Hospital, adopted his own treatment. Out of 136 in-patients 96 recovered, a percentage of 70.59."

These figures, whose accuracy can hardly be questioned, seem eloquent testimony to the value of inoculation against cholera and plague. Though not yet as efficacious as the control of other diseases, it apparently affords a very considerable and important protection against the two most serious epidemic scourges of humanity in the Orient.

OPEN STREET-CARS IN WINTER.

A movement has been instituted for the use of open street cars in winter as well as in summer in Boston and its vicinity. A hearing on this subject was held last week before the public utilities committee of the Chamber of Commerce, and a number of Boston physicians appeared and spoke emphatically in approval of the project. The plan has been already tried in Brooklyn with marked success. The subject is the more pertinent at this time when the advent of crisp, frosty autumn weather leads the timorous to insist on the closure of all car windows, to the discomfiture of their more understanding fellow-passengers. The atmosphere of the average street-car, whether crowded or not, is usually unfit to breathe, and is offensive to those whom the modern gospel of hygiene has habituated to fresh, cold air. It is, therefore, sincerely to be hoped that the present effort to secure more wholesome conveyances may be successful. Certainly the instalment of a certain number of open cars would give the travelling public a fair chance to choose, and their choice would soon leave no doubt as to the desirability of the measure.

MIDWINTER MEETING OF THE AESCULAPIAN CLUB.

It is announced that invitations are soon to be issued for the eleventh annual midwinter meeting of the Aesculapian Club of Boston, which will be held at Copley Hall, Clarendon Street, on Saturday evening, Dec. 7, at 8.15. The speakers on this occasion will be Dr. Arthur Dean Bevan, of Chicago, on "The Relation of Hospitals to Medical Education"; Dr. John L. Todd, professor of parasitology at McGill University, Montreal, on "The Importance of a Knowledge of Tropical Diseases in Colonization"; and Dr. Edward H. Bradford, dean of the Harvard Medical School, and Dr. Horace D. Arnold, dean of the Harvard Graduate School of Medicine, on "Progress in Medical Education."

To those privileged to attend it, the annual

midwinter meeting of the Aesculapian Club is always an occasion of great professional as well as personal interest and enjoyment. The speakers and topics of the coming meeting promise to maintain well the standards of the past, and to afford those contributions of original merit which make every Aesculapian meeting one of the important events of the season in Boston.

MEDICAL NOTES.

TWO BRITISH CENTENARIANS.—Mrs. Louisa Beay, of Plymouth, Devonshire, England, who died on Oct. 12, is said to have been born on Sept. 28, 1812.

Mrs. Sutton, of Tunbridge Wells, England, who is said to have been born on Nov. 14, 1812, in Montreal, celebrated last week her supposed centennial anniversary.

AWARD TO DR. GORGAS.—It is announced, by press report from London, that on Nov. 14 the Royal Society of England awarded its Buchanan Medal to Colonel William C. Gorgas, U. S. A., in recognition of his achievements in the sanitation of the Panama Canal Zone.

STATUE TO JOSEPH PRIESTLEY.—A statue to Joseph Priestley, erected by public subscription, has been recently unveiled in Birstall, Yorkshire, England, where he was born in 1733. His discovery of oxygen and other gases revolutionized the science of chemistry. It was he who discovered the properties of nitrous oxide, though it remained for Sir Humphrey Davy first to suggest its use as a surgical anesthetic.

FRENCH COLLEGE OF ATHLETICS.—It is reported that a College of Athletics is to be established near Paris, under the direction of Dr. Weiss of the French Academy of Medicine, for the purpose of regenerating the physical vigor of the people of France.

DECLINE OF SURGICAL MORTALITY IN WAR.—In the American Civil War the mortality among the wounded was 13.2%; in the Franco-Prussian War, 11%; in the Russo-Japanese War only 5%. These figures indicate eloquently the change which asepsis has made in the mortality of military surgery.

BOSTON AND NEW ENGLAND.

A GOOD MORTALITY RECORD.—During the week ending Nov. 16 there were, for the first time in many years, no deaths in this city from diphtheria, typhoid fever, or scarlet fever.

SEIZURES OF DRUGS AND IMPURE FOOD.—In Boston last week the customs inspectors, at a raid in the South End, seized opium and utensils for smoking the drug to the value of $700. The Chinese proprietor of the establishment was arrested and held under $500 bonds.

Last week the United States deputy marshal seized at a wharf in this city 1000 cases containing 48,000 cans of salmon, alleged to be "filthy, decomposed, and putrid," which had been shipped to Boston from a firm in Alaska. The goods are valued at $4000, and are said to constitute the largest seizure of impure food ever made at this port.

NEW BUILDINGS OF ST. ELIZABETH'S HOSPITAL.—On Wednesday of last week, Nov. 13, ground was broken in Brighton for the new buildings of St. Elizabeth's Hospital.

DIRECTOR OF THE FORSYTH DENTAL INFIRMARY.—It is announced that the trustees of the Forsyth Dental Infirmary have appointed Dr. Harold DeWitt Cross, of Boston, director of the Infirmary.

WORK OF THE BOSTON FLOATING HOSPITAL.—At the annual meeting of the Boston Floating Hospital Corporation, held in this city recently, reports were presented by the treasurer, the manager, and the resident physician.

"The review of the work of the year showed that great advance had been made in all departments, particularly in the bacteriological branch under Dr. Arthur I. Kendall. It was approved that publications useful to the medical and scientific world, based on the work of the season, be published during the winter.

"Distinct progress was reported in the 'On Shore' work in connection with the families of patients. This work was begun in 1909 in a small way, and has developed conservatively as the means of the institution would permit. Miss Martha H. Stark has had charge of this department during the past year and is still continuing her visits."

QUINCY CITY HOSPITAL.—It is announced that the sum of $35,000 has been raised for the Quincy (Mass.) City Hospital, which is now free from debt.

PROPOSED JEWISH HOSPITAL IN ROXBURY.—It is announced that the Grace Hospital, Roxbury, has been purchased by the Hebrew Immigrant Society, for a Jewish Hospital.

Cullis Consumptives' Home.—The annual donation day of the Cullis Consumptives' Home, Grove Hall, was held on Tuesday of last week, Nov. 12, and a considerable sum of money was realized for the benefit of the Home.

Massachusetts Homeopathic Hospital.—On Wednesday and Thursday of last week, Nov. 13 and 14, a fair was held in Boston by the graduates of the Massachusetts Homeopathic Hospital Training School to raise money for the establishment of a free bed for nurses at the hospital.

Nominations by Governor Foss.—Governor Foss has recently submitted to the executive council the nominations of Dr. Charles H. Mace, of Huntington, Mass., to be associate medical examiner of Hampshire county; Dr. Clarence P. Curely, of Provincetown, Mass., to be medical examiner of Barnstable county; and Charles E. Rogerson, of Milton, Mass., to be trustee of the Massachusetts Homeopathic Hospital.

Address by Dr. Knopf.—On Wednesday of this week, Nov. 20, was held in this city the annual meeting of the Boston Association for the Relief and Control of Tuberculosis, at which the principal address was delivered by Dr. Adolphus Knopf of New York.

Boston Mortality Statistics.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Nov. 9, 1912, was 223, against 203 the corresponding week last year, showing an increase of 20 deaths, and making the death rate for the week 16.15. Of this number 118 were males and 105 were females; 220 were white and 3 colored; 135 were born in the United States, 88 in foreign countries, and 0 unknown; 53 were of American parentage, 144 of foreign parentage, and 26 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 42 cases and 0 deaths; scarlatina, 28 cases and 0 deaths; typhoid fever, 7 cases and 2 deaths; measles, 48 cases and 1 death; tuberculosis, 60 cases and 14 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 30, whooping cough 1, heart disease 28, bronchitis 2. There were 16 deaths from violent causes. The number of children who died under one year was 32; the number under five years 42. The number of persons who died over sixty years of age was 73. The deaths in hospitals and public institutions were 90.

Deducting the deaths of non-residents, the total is 194. The corrected death-rate is then 1405.

Cases of infectious diseases reported to the Boston Board of Health for the week ending November 12, 1912, are: Diphtheria, 41; scarlatina, 31; typhoid fever, 8; measles, 36; smallpox, 0; tuberculosis, 59.

The death rate of the reported deaths for the week was 14.85.

NEW YORK.

New York Division of Medical Reserve Corps.—The resident officers, in New York, of the Medical Reserve Corps of the United States Army, formed the New York Division of the Corps at the meeting held at the Army and Navy Club on Nov. 7th. Col. L. Merwin Maus, Chief Surgeon of the Eastern Division of the United States Army, presided and read a paper on the purposes of the Corps.

He made it very plain that the War Department expects to utilize the officers of the inactive list in time of war, for the purpose of commanding base hospitals, serving forts, and doing the work which the regular medical staff is called upon to perform. Col. Maus is of the opinion that the Medical Reserve Corps as now formed is of enormous potential value, and he is working very actively to have the Government authorize camps of instruction, so that the Reserve officers can spend one or two weeks in camp every summer receiving instruction in the duties of medical officers.

He also advocates the promotion of the Medical Reserve officers, so that after serving three years as 1st Lieutenant they may be promoted to Captain and then on through the regular grades so that at the expiration of 30 years of service the Medical Reserve officers may reach the grade of Colonel.

At the initial meeting of the New York Division about 45 men, all prominent in New York's medical life, were present. The following were nominated for the officers of 1913:

President, 1st Lieut. Henry Clark Coe.

Vice-President, 1st Lieut. Thomas Darlington.

Secretary, 1st Lieut, Harold Hays.

Treasurer, 1st Lieut. H. Sheridan Baketel.

Councilors, 1st Lieuts. Arnold Knapp, Howard Lilienthal, Clarence A. McWilliams, Eugene H. Pool and J. B. Rae.

The next meeting will be held in the large hall at Fort Jay, Governor's Island, on Dec. 5,

and addresses will be made by Col. William Stephenson, Col. Maus, and other high medical officers.

DIMINUTION OF HEBRAIC DEPENDENCY.—Dependency among the Jews of New York City, according to the annual report of the United Hebrew Charities, is decreasing appreciably. The association's statistics show that in the fiscal year just ended there were 700 fewer applications for relief than last year, and that 600 fewer persons were found by its investigators to need charitable suport. The report goes on to say: The continuing decrease in the number of families demanding and requiring assistance is a growing indication that the Jewish immigrant is taking full advantage of the opportunities afforded here for a livelihood, and, more than this, is exercising thrift and prudence in providing against emergencies of illness, unemployment and accident, through the various mutual help agencies, such as fraternal organizations and insurance companies. From this it must not be inferred, however, that the financial burden upon the society is diminished. The problem of dependency has become much more difficult and intricate. Into it are injected larger and more complicated considerations, involving woman and child labor, housing, education, health and recreation. Where in former years the grant of a small sum to tide one over the emergency disposed of the case, to-day the continuous relief granted must be coupled with intelligent, solicitous and painstaking efforts to rehabilitate the family.

Current Literature.

MEDICAL RECORD.

NOVEMBER 9, 1912.

1. *OETTINGER, B. *Some Data Concerning a Humoral Etiology of Spasmodic Asthma. Outline of Treatment in Accordance with the Foregoing.*
2. WESSON, M. B. *Chronic Lymphatic Leukemia. Study of a Case, with Particular Reference to Blood Picture and Ferments in the Urine.*
3. FRAZER, T. *Hemoptysis in Tuberculosis; Its Significance and Its Treatment.*
4. HARDENBERGH, D. B. *The Physician's Rôle in Preventive Medicine.*
5. RUECK, G. A. *A Study of the Effect of Experimental Hyperthermy on the Opsonic Activity of the Blood Serum of the Rabbit.*
6. DIXON, T. *The Unfortunate Predicament of the Medical Profession.*
7. PETERY, A. K. *Manic-Depressive Insanity.*
8. BATES, W. H. *A Case of Myopic Refraction Relieved by Eye Education.*

1. Oettinger draws an interesting parallel between anaphylaxis and asthma. The identity, he says, of the mechanism underlying the toxemia of anaphylaxis and spasmodic asthma is attested by many physical signs. Whether or not the toxic intermediate products of protein metabolism common to both conditions are rendered inert, depends upon the capacity of the organism to reduce them to end products capable of elimination. Methemoglobin, being a more stable oxygen compound than oxyhemoglobin, fails to give up its oxygen to the tissues. Moreover methemoglobin is reduced by the toxic proteins of disease. The above conditions and the fact that methemoglobinemia is harmful only when excessive justify the use of small doses of methemoglobin-producing drugs in the treatment of asthma. In practice this therapeutic methemoglobinemia has been successful.

[L. D. C.]

NEW YORK MEDICAL JOURNAL.

NOVEMBER 9, 1912.

1. SYMS, P. *Gall-stones.*
2. SORESI, A. L. *Why Is Direct Transfusion of Blood Often a Failure?*
3. KEYES, E. L., JR., AND MACKENZIE, D. W. *The Temperature After Perineal Section Under Spinal Anesthesia.*
4. GWATHMEY, J. T., AND WOOLSEY, W. C. *The Gwathmey-Woolsey Nitrous Oxide-Oxygen Apparatus.*
5. HERVEY, C. R. *Some Considerations of General Anesthesia.*
6. BROWN, J. S. *Operative Treatment for Cancer of the Breast.*
7. BALDWIN, L. G. *The Cure of Prolapse of the Uterus and Bladder by Plastic Operation.*
8. KIOLIN, C. F. *Lane's Kink of the Ileum.*
9. GLOGAN, O. *Nasal Deformity Corrected by Auto-Implantation of the Septal Cartilages.*
10. STEVENS, W. W.. *Cause, Prevention and Care of Weak and Flat Feet.*
11. STILLMAN, C. K. *Mortality of Lobar Pneumonia in Alcoholic Subjects.*
12. KIRBY-SMITH, J. L. *A Pustular Syphiloderm in a Negress Simulating Variola.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

NOVEMBER 2, 1912.

1. *CLARK, J. G. *Gall-stones Coincident with Other Surgical Lesions.*
2. HAMBURGER, W. W. *Sporotrichosis in Man. With a Summary of the Cases Reported in the United States and a Consideration of the Clinical Varieties and the Important Factors in the Differential Diagnosis.*
3. MARTIN, A. C. *The Application of Conservative Surgery to Ovarian Dermoids.*
4. ROBERTSON, J. A. *Bilateral Fibromatosis of Ovaries, with Ossification of Ovarian Fibroma.*
5. AMBERG, S., AND KNOX, J. H. M., JR. *Influence of Sodium Iodoxybenzoate on Reactions of Inflammatory Character.*
6. KRAEMER, H. *The Retail Pharmacist as a Purveyor of Pure Drugs.*
7. KEBLER, L. F. *The Quality of Drugs on the Market.*
8. TRUE, R. H. *Drug Plant Cultivation.*
9. METTLER, L. H. *Multiple Sclerosis.*
10. DERCUM, F. X. *A Case of Multiple Cerebrospinal Sclerosis, Presenting Unusual Symptoms Suggesting Paresis, Clinical and Pathologic Findings.*
11. *MACLEAN, A., AND ANDRIES, R. C. *Ileus Considered Experimentally.*
12. *OSBORNE, O. T. *Some Common Types of Hyposecretion of the Thyroid.*

13. Castelaw, R. E. *The Importance of Careful Investigation Before Removing or Destroying Organs.*

1. Clark believes that gall-stones give rise to symptoms in a much larger proportion of cases than is commonly supposed and that many cases hitherto diagnosticated and treated as "chronic indigestion" and other vague stomach disorders are in reality cases of cholelithiasis. Gall-stones are not ordinarily innocuous when they are producing no symptoms and may produce fatal lesions while their presence is unsuspected. Unless contraindicated the gall-bladder as well as the appendix should be examined in all cases of celiotomy and gall-stones, if present, should be removed whether they offend or not, provided the patient's general and local condition is favorable.

11. McLean and Andrews cite experimental evidence to contradict the prevailing theory that death in ileus is due to toxemia or to the absorption of bacteria or their toxins. They feel that they have proved that a depletion of the vascular and lymph system, causing a grave disturbance in the circulation especially in the cerebral circulation is a prime factor in the causation of death. A pathologic change in the sympathetic nervous system, a loss of sympathetic control is probably contributory.

12. Osborne emphasizes the psychopathic element in all thyroid associated disturbances. The physiologic activities of the normal thyroid are numerous, such as a stimulant to growth in childhood, both bodily and mental; it also takes active part in the deposition and distribution of fat and an unknown but important part in nitrogen metabolism. Without its activity proper genital development is impossible and a secretion of the genital organs is imperfect. It takes an active part in the function of menstruation and during pregnancy it furnishes normally an extra amount of secretion. If it does not do so the menstrual function is imperfect, the woman during pregnancy is abnormal and parturition is likely to develop eclampsia and the child is likely to be born a cretin. The author cites several very interesting cases of asthenia due to deficient thyroid secretion which have been promptly relieved by sodium iodide stimulating the gland to activity.

[E. H. R.]

November 9, 1912.

1. Russ, W. B. *The Hospital as a Factor of Interest to the Medical Profession.*
2. Welch, W. H. *The Hospital in Relation to Medical Science.*
3. Arnold, H. A. *A Clinical View of the Special Diet.*
4. Truesdale, P. E. *The Hospital Versus the Home in the Care of the Sick.*
5. Murphy, J. B. *Relation of the Physician to the Hospital.*
6. Hurd, H. M. *The Proper Division of the Services of the Hospital.*
7. Washburn, F. A., and Burlingham, L. H. *A Few Problems of Hospital Organization.*
8. Howard, H. B. *The Medical Superintendent.*
9. Abt, I. A. *Individual Prophylaxis in Children's Hospitals.*
10. Cabot, R. C. *Out-patient Work the Most Important and Most Neglected Part of Medical Service.*
11. Davis, M. M., Jr. *The Efficiency of Out-patient Work.*
12. Plummer, S. C. *The Relations of the Hospital to Corporations Interested in Patients.*
13. Bell, M. L. *The Legal Aspects of the Relations of Hospitals to Corporations Interested in Patients.*
14. Richard, C. *The Relation of the Civil Hospital to Military Establishment in Time of Peace; In Time of War.*
15. Munger, E. C. *Hospitals and the Health Problems with Special Reference to the Necessities of Rural America.*
16. Stitt, E. R. *A Quick Method for Accurately Differentiating the Species of Hookworm of Man.*
17. Wood, H. B. *Intestinal Parasites in the South.*
18. Percy, J. F. *Thyroid Extract in Nephritis: A Preliminary Statement of a New and Effective Method of Treatment.*
19. Pollock, L. J., and Jewell, E. B. *Muscle Group Isolation in the Treatment of Spasticities and Athetoses.*
20. Remsen, C. M. *Suggestions for Operation and After-treatment of Empyema.*
21. Capps, J. A. *The Rôle of Milk in the Causation of the Chicago Epidemic of Sore Throat.*

The Lancet.

October 19, 1912.

1. *MacNaughton-Jones, H. *A Report on the Surgery of the Peritoneum.*
2. *Rogers, L. *Amebic Colitis in India; Prevalence, Diagnosis and Emetine Cure.*
3. Martin, A. M. *Injuries to the Semilunar Cartilages, a Personal Experiences of 449 Cases of Operation.*
4. *Man, G., and Gage, J. G. *On the Changes Induced in Blood by Feeding.*
5. Higgens, C. *A Note on a Case of Double Cataract: The Case of General Booth.*
6. Slattery, J. B. *Actinomycosis Occurring in Tuberculous Subjects.*
7. Luker, S. G. *A Case of Rupture of a Hemorrhagic Corpus Luteum Into an Intraligamentary Cyst, Resembling Ruptured Ectopic Pregnancy.*

1. MacNaughton-Jones considers the surgery of the peritoneum first as to the conditions, pathological and clinical which predispose the peritoneum during operative intereference to infection and inflammation and the prophylactic measures best calculated to combat such; he then considers the most efficient means of preventing infection or irritation of the peritoneum antecedent to and during an operation. Finally he discusses the question as to how far bacteriological researches have thrown light on antiseptic measures and the value of vaccines or serum as prophylactic.

2. Rogers discusses the relative prevalence of amebic and bacillary dysentery; the seasonal incidence of dysentery in relation to rainfall and temperature, the proportion of cases of liver abscess in dysentery, the differential diagnosis of amebic colitis and the best method of examining stools for amebae and finally the relative advantages of the ipecac and emetine treatment and the methods of administration and dosage of the emetine salt. He uses hydrochloride of emetine in one-half grain doses twice a day for two or three days which usually suffice for a cure. This dose equals 60 grams of ipecac. He believes that emetine produces a quick and permanent cure.

4. Mann and Gage present an elaborate article based on experimental work in human beings and on animals as to the changes induced in blood, particularly the white cells as a result of starvation and feeding. There is an elaborate colored plate. During the digestion period there is a marked increase in the staining intensity of all nuclei and other finer changes. The paper is of distinct scientific though hardly of clinical interest.

[J. B. H.]

October 26, 1912.

1. Goodhardt, J. F. *The Harvcian Oration on the Passing of Morbid Anatomy.*

2. SAVAGE, C. H. *An Address on Mental Disease.*
3. *TYLECOTE, F. E. *Remarks on Industrial Mercurial Poisoning as seen in Felt-Hat Makers.*
4. WALTON, A. J. *The Operative Treatment of Fractures.*
5. O'CONNOR, J. *Some Reflections on Gastro-jejunostomy.*
6. DAVIS, H. *A Case of Localized Intra-corpuscular Sulphemoglobinemia.*
7. NORRIS, R. S. *A Case of Myxoedema.*
8. HUDSON, B. *The Practical Use of Vaccine Treatment in Pulmonary Tuberculosis.*

3. Tylecote discusses in an interesting way the various processes in the felt hat industry which may lead to mercurial poisoning. He discusses the path of entry of the poison, the symptoms related to the mouth and alimentary canal, the nervous and muscular systems and symptoms affecting other organs. Under medical treatment he recommends iodide of potassium; he urges preventive treatment as to dust and fume removing appliances as the real cure.

[J. B. H.]

BRITISH MEDICAL JOURNAL.

OCTOBER 12, 1912.

1. *GRIFFITH, S. W. *The Scharstein Lecture on Some Cardiac Problems.*
2. NICOLL, W. *On the Length of Life of the Rat Flea Apart from Its Host.*

THE BRITISH MEDICAL ASSOCIATON.

SECTION OF MEDICINE.

3. GLYNN, S. R. *Introductory Remarks by the President.*
4. *LEES, D. B. et al. *Discussion on the Diagnosis and Treatment of Early Cardiac Complications of Rheumatism.*
5. *DAWSON, R. et al. *Discussion on the Pathogenesis, Diagnosis, and Medical Treatment of Gastric Ulcer.*
6. CAMMIDGE, P. J. *The Quantitative Regulation of the Diet in Diabetes.*
7. GIBBARD, S. W., AND HARRISON, L. W. *The Treatment of Syphilis with Salvarsan and Neo-Salvarsan.*
8. *MUTHER, C. *Some Points in the Treatment of Pulmonary Tuberculosis Including Continuous Antiseptic Inhalation.*
9. *PEARSON, S. V. *Some Further Experiences of Artificial Pneumothorax in the Treatment of Tuberculosis.*
10. *PARSONS, L. D. *Tuberculin in the Diagnosis and Treatment of Tuberculous Diseases Especially Pulmonary Tuberculosis.*
11. WATTERS, L. R. *The Estimation of General Improvement in Pulmonary Tuberculosis.*
12. *BROOK, L. W. *Cause and Treatment of Certain Cases of Neurasthenia.*
13. *EWART, W. *Demonstration of a More Systematic Dorsal Apical Percussion and of the "Coal Interspinous Dullness" as an Aid to Early Diagnosis.*

1. Griffith in a long article illustrated by many pulse tracings considers many of the complex problems concerning the heart on which much light has been thrown by Mackenzie and others. Among other points he considers the essential features of the jugular pulse, alterations in cardiac rhythm, extra-systoles, pulsus alternans, heart block and auricular fibrillation.

4. Lees considers acute and subacute rheumatism as a microbic infection most virulent in childhood: dilation of the left ventricle is invariably present in every case. This is caused by toxemia and the resulting myocarditis and is an early and constant symptom. By careful percussion this dilatation can be easily detected. Prolonged rest is the first essential to treatment, the second is the administration of salicylates and sodium bicarbonate. An interesting discussion bringing out many points of importance follows.

5. Dawson in a long article on gastric ulcer first reviews its bacteriology and pathology, briefly considers diagnosis and its differentiation from cancer and last takes up treatment. This he summarizes as follows: Keep the alimentary tract clean and healthy, keep gums and teeth free from sepsis, treat tonsillar and naso-pharyngeal infections. He devotes very little space to diet or drugs. He then discusses surgical treatment and describes the operation of gastro-enterostomy. He urges medical treatment first, reserving surgical measures only in case medical treatment fails to cure or improve. Saundby, Clark, Hunter, Miller, Harley, Hertz, Tyson, Paterson and others took part in a lengthy discussion of the subject.

6. Cammidge urges a further use of a strictly regulated diet in diabetes measured with exactness according to calories. He describes his diet and method of training the patient and of obtaining his coöperation.

8. Muther urges the use of antiseptic inhalations in phthisis as a great aid to open air measures and graduated exercises. He reports that out of 42 patients at his sanatorium during 1911 who went through this treatment 20 made an excellent recovery and six were improved. He gives rather too much credit to this little-used method of treatment and too little to the out-door life at his sanatorium in producing his results.

9. Pearson reports a few cases treated with artificial pneumothorax at the Mundesley Sanatorium. He urges great care in selecting the patient and utmost frankness in informing him and his friends of possible dangers and probable benefits. The paper is sound and sane.

10. Parsons heartily recommends the use of tuberculin in gradually increasing doses in phthisis and other forms of tuberculosis. He presents his results in tabular form.

12. Brook believes that a certain proportion of cases of neurasthenia are in reality due to an abnormal condition of the intestinal flora, and that treatment by autogenous vaccines and sour milk will be of great value in this type.

13. Ewart in a long and elaborate paper describes certain finer points in percussion of the apices of the lungs as an aid to early diagnosis of tuberculosis. (The paper will be of interest to specialists in this line but to the general practitioner it rather tends to draw attention away from that most important point viz.: that the early diagnosis of consumption depends far more on general constitutional signs and symptoms rather than on signs in the lungs. Anything which tends to hide this fact is not, therefore, to be encouraged.)

[J. B. H.]

OCTOBER 19, 1912.

1. FAIRBAIRN, J. S., AND WYATT, J. M. *The Maternity Ward at St. Thomas's Hospital, London, and Its Work During 1911.*
2. *SIEDEBERG, E. H. *The Significance of Albuminuria in Pregnancy.*
3. CHAPPLE, H. *A Persistent Occipito-transverse Presentation: Labor Obstructed at the Pelvic Outlet.*
4. RUSSELL, A. W. *A Plea for a Universal Standard in the Observation of the Morbidity of Childbed.*
5. MOXON, F. *Some Remarks, with Statistics, on the Treatment of 1305 School Children (London County Council) at the Royal London Ophthalmic Hospital (Moorfields).*
6. BRUNTON, L. *Transitory Bigeminal Pulse.*

THE BRITISH MEDICAL ASSOCIATION.

SECTION OF OPHTHALMOLOGY.

7. BROWNE, E. A. *Introductory Remarks by the President.*
8. COATS, G. *Discussion on Chronic Irido-cyclitis.*
9. GROSSMANN, K. *The Board of Trade Standard of Eyesight for Sailors.*
10. *MACKAY, G. *Discussion on the Use of Tuberculin in Diseases of the Eye.*
11. HINSHELWOOD, J. *The Treatment of Word-blindness, Acquired and Congenital.*
12. POLLOCK, W. B. *Intraocular Hemorrhage.*
13. STEPHENSON, S. *Discussion on Salvarsan in Diseases of the Eye.*
14. BRADBURNE, A. A. *Ocular Imbalance and Auditory Affections: An Investigation Into the Relationship.*
15. EVANS, J. *Demonstration.*

SECTION OF LARYNGOLOGY AND RHINOLOGY.

16. HUNT, J. M. *Introductory Remarks by the President.*
17. KAHLER, O. *Discussion on the Differential Diagnosis of Esophageal Stenosis.*
18. BRONNER, A. *Notes on Some Cases of Painful Fissure of the Mouth of the Esophagus.*
19. DOWNIE, W. *Syphilis as a Cause of Esophageal Stenosis.*

2. Siedeberg has studied 289 cases of albuminuria in pregnancy during the past five years which have come under her observation. She does not call this condition nephritis as it is only transitory in many instances. There were only five cases of eclampsia. The percentage of miscarriages and still births in the albumin cases was far greater than in those without albumin, in general when albumin was present other complications such as ante- or post-partum hemorrhage, were far more likely to be present.

10. In an article illustrated by an excellent colored plate Mackay discusses the use of tuberculin in the diagnosis of ocular tuberculosis, the various tests and their relative value, advantages and disadvantages and the importance and means of discriminating between human, bovine and avian varieties of the disease. In considering tuberculosis in therapeutics he discusses general principles the scheme of dosage and the duration of its influence. He presents various illustrative cases. He believes tuberculin to be of great value in treatment but that after all, general hygienic measures and other means to improve the general health are of still greater importance.

17. In a long discussion on esophageal stenosis and its differential diagnosis, Kahler discusses the various methods and instruments and tests used to diagnose this condition. He gives an elaborate bibliography. Waggett discusses malignant disease of the esophagus (and pancreas). Kelly describes stenoses at the lower end of the esophagus with special reference to those of spastic origin. Many others took part in the discussion which seemed thoroughly to cover every point of the subject.

[J. B. H.]

THE QUARTERLY JOURNAL OF MEDICINE.

VOL. 6. No. 21. OCTOBER, 1912.

1. *COCKAYNE, E. A.. *Catarrhal Jaundice, Sporadic and Epidemic, and Its Relation to Acute Yellow Atrophy of the Liver.*
2. *WILLIAMS, D. T., AND POWELL, P. M. *The Action of Diastase in Diabetes Mellitus.*
3. RITCHIE, W. T. *The Action of the Vagus on the Human Heart.*
4. SCHRYVER, S. B., AND SINGER, C. *Investigations on the Gastric Juice in Malignant and Non-malignant Diseases of the Stomach and Duodenum. Part I. On a Peptolytic Enzyme of Gastric Juice.*
5. *GRAHAM, G., AND POULTON, E. P. *The Influence of High Temperature on Protein Metabolism with Reference to Fever.*

1. That catarrhal jaundice, both epidemic and sporadic, is a specific disease is the contention of Cockayne. The points in favor of this view are the following: Its frequent occurrence in small epidemics in which infection is by contact; its seasonal variation and varying frequency in different years; the frequent presence of a prodromal period with fever, aching pains, and as in a recent case seen by the reviewer inflammation of the throat: and its predilection for children and young adults. The sporadic cases resemble those seen in epidemics in every particular and therefore the two disease are to be regarded as identical. One of the author's cases was remarkable for its long duration, 102 days, and for the occurrence of a relapse. Acute yellow atrophy is regarded by the author as merely a sequel, though a rare one, of catarrhal jaundice; because it occurs when catarrhal jaundice is prevalent, sometimes in the same house with patients afflicted with ordinary jaundice. For instance, in some epidemics of catarrhal jaundice the disease has run its usual course except where pregnant women were affected, and these latter have shown the signs of acute yellow atrophy. Moreover the changes in the liver are the same in fatal epidemic catarrhal jaundice and in acute yellow atrophy.

2. Diastase (including taka-diastase) was found to have no beneficial effect in diabetes mellitus.

5. This valuable study by Graham and Poulton (from F. Müller's clinic) showed that increased body temperature does not of itself cause increased breaking down of proteins. The writers experimented upon themselves, and produced artificial fever, by exposure to a steam-bath, obtaining in this way body temperature up to 104° over a period of several hours. They found that on a diet with high caloric value containing large amounts of carbohydrates and but little protein, non-nitrogenous substances supplied the whole of the increased energy production set up by the high temperature. When a diet of ample caloric value containing no carbohydrates but a large excess of protein was taken, the fat metabolism was increased, but it was probable that the protein metabolism also took a small share in the increased energy production. On a carbohydrate-free diet of insufficient caloric value but containing a fair amount of protein, there was a marked increase in the fat metabolism but no increase in the nitrogen excretion.

[W. T.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT. No. 41.

OCTOBER 10, 1912.

1. KRAUSE, P. *Pathology and Therapy of Tuberculous Meningitis.*
2. KÜLBS. *The Influence of Exercises on the Growing and Mature Organism.*
3. NEUMANN, W. *Dextroversio Cordis and Its Influence on the Electro-cardiogram.*
4. LINDEMANN, E. A. *The Type of Tubercle Bacilli Found in Tuberculosis in Apes.*
5. HUBER, O. *Blood Changes Due to Chlorate of Potash Poisoning.*
6. ROSENSTEIN, P. *Chemotherapeutic Effects in Septic Processes.*
7. *ZALEWSKI. *Temperature Measurement in Both Axillae, Its Significance in Surgery.*
8. WOLF, W. *Nilson's Modification of Narath's Varicocele Operation.*
9. KAPPIS, A. *Sterilization of Degenerates by Vasectomy with Retention of the Testicles.*
10. SCHMID, H. H. *The Treatment of Atonic Bleeding.*
11. GAMMELTOFT, S. A. *The Hermann and Perutz Modification of the Pirges Syphilis Reaction.*

12. WOLFSOHN, G. *The Serum Diagnosis of Tumors by Means of v. Dungern's Reaction.*
13. GRABLEY, P. *High Frequency.*
14. RÉTHY. *X-ray Examination of the Larynx and Trachea.*
15. LOHNSTEIN, H. *Lead Poisoning.*

7. The author states that just as the difference between axillary and rectal temperature is an indication of the severity of an abdominal infection, so a comparison of the two axillary temperatures is of significance in diseases of the chest. Normal individuals show slight variation between the two axillae, the left showing a slight increase over the right if there be a discrepancy. In tuberculosis, lung abscess and similar infections, the affected side shows a higher axillary temperature, differences of from 4-10 to 5-10 of a degree being sufficient to locate the process. The amount of difference furnishes some ground for judging the severity of the process, as well as the progress of the disease.

[C. H. L., Jr.]

No. 42. October 17, 1912.

1. STRAUSS. *Dietetic Treatment of Diabetes Insipidus and Kindred Polyurias.*
2. MEYER, F., AND SCHMITZ, K. E. F. *The Nature of the Tuberculin Reaction.*
3. *BAUER. J. *Heart Changes in Endemic Goitre.*
4. HENKEL. *A New Apparatus for Determining the Venous Pulse.*
5. LISSAUER, M. *Pathologic Changes in the Pancreas in Chronic Alcoholism.*
6. FRAENKEL, E. *Lordotic Albuminuria and Titration Acidity of the Urine.*
7. v. EINSEIDEL. *Staphylococcus Vaccines.*
8. JOROSCH. *Combatting Tuberculosis of the Upper Air Passages by Mallebrein's Method.*
9. FRITZ, G. *New Observations on the Effects of Yohimbin.*
10. BERGELL, P. *Urinary Analysis.*
11. GOEBEL, W. *The Percussion Diagnosis of Fractures of the Skull.*
12. LIEK. *The Treatment of Threatened Traumatic Gangrene of the Extremities.*
13. RETZLOFF, O. *Scarlet R. Preparations.*
14. GERBER. *New Cases of Scleroma in East Prussia.*

3. Bauer, in a careful article, analyses the cardiac symptoms found with endemic goitre, and comes to the following conclusions: 1. In endemic goitre there is often encountered a clinico-pathological heart condition, differing from the previously described forms of goitre heart. 2. This condition is characterised by an accidental systolic murmur loudest over the pulmonic area, an accentuated pulmonic second sound, and a slight increase in the cardiac dullness to the left. The apex impulse is not increased in force, the pulse is not accelerated, and subjective cardiac symptoms are lacking. 3. This condition is to be termed the toxic goitre heart, and is to be distinguished from the goitre heart of other authors.

WIENER KLINISCHE WOCHENSCHRIFT. No. 44.

October 31, 1912.

1. HEITLER, M. *Cardiac Percussion.*
2. BÁRÁNY, R. *Relations Between Structure and Function of the Cerebellum, After Investigations on Man.*
3. v. SZILY, P. *The Immunotherapy of the Multiple Staphylococcus Skin Abscesses of Infants.*
4. v. HOFFMANN, K. R. *The Action of Biliary Salts on Gonococci.*
5. AUSSCHERLIK, H. *Case Contribution to Infantile Hydronephrosis.*
6. KÜHNELT, E. *A New Method for the Administration of Larger Emanation Doses. Part I.*
7. SOFER, L. *Social Medical Review.* (To be concluded.)
8. PARK, H. *The Second Occupational Hygiene Congress at Frankfurt.* (To be concluded.)

ZEITSCHRIFT FÜR KLINISCHE MEDIZIN.

Bd. 75. Ht. 3-4.

1. KAUFMANN-WOLF, M. *The Fate of Syphilitic Patients and Their Families.*
2. EHRENREICH, M. *Continuous Study of the Gastric Motility by Means of Persistent Stomach Tube.*
3. MUENZER, E. *Pulse Irregularity.*
4. *DITTLER, E., AND MOHR, R. *Pharmacology of Hormonal.*
5. LEIMDOERFER, NOVAK, AND PORGES. *Carbonic Acid Tension of the Blood in Pregnancy.*
6. *SCHLESINGER, E. *Gastro-Pyloro-Duodenoptosis (Recognized by X-ray) as the Cause of Back-Flow from Intestine Into Stomach.*
7. SIEWERT, A., AND ZEBROWSKI, E. *Comparative Influence of White and Dark Meats on the Excretion of Uric Acid, etc.*
8. *RUDINTZKY, N. M. *Palpation of the Thorax, Percussion Palpation, and Their Diagnostic Significance.*

4. Hormonal, according to the authors, is not a specific stimulant of peristalsis, as has been claimed. They found that, given intravenously, it like many organic extracts diminishes blood pressure rapidly, that it increases coagulation time of the blood and stimulates secretion, but does not directly and in a specific manner cause peristalsis.

6. Gastroptosis favors the regurgitation of duodenal secretion and bile into the stomach because of the direction in which the pylorus points and because of the diminished tone of the walls. In advanced cases the pyloric portion of the stomach becomes a reservoir of mixed gastric and pancreatic secretion.

8. The author lauds palpation and palpatory-percussion of the thorax as great aids in diagnosis. Considerable difference in density of underlying structures may be detected with the palpating finger alone, but finer differences require reënforcement of the palpating finger which is obtained by striking it with the finger of the other hand, not for the purpose of detecting sound, but solely to increase its sensitiveness to touch. By this means small collections of fluid and plastic pleurisies could be detected, the same being overlooked by ordinary percussion and auscultation methods. (The methods employed by the author of this article are second nature to the physician who stands fast by the old-fashioned finger percussion. A review of the article is useful chiefly as showing the value of a simple personal method, which can be dispensed with only with detriment for some supposedly more accurate instrumental method.)

[J. B. A.]

Obituary.

ROBERT MAITLAND O'REILLY, M.D.

ROBERT MAITLAND O'REILLY, Major General U. S. Army, retired, Surgeon General of the Army from September 7, 1902, to January 14, 1909, died of uremic poisoning on November 3, 1912. He was born at Philadelphia, Pa., on January 15, 1845, and was descended from an old Irish family, one branch of which settled in Spain and a member of which had been Captain-General of Cuba and one of the Spanish Gov-

ernors of Louisiana. He was educated in the public schools of his native city, and his medical studies, at the University of Pennsylvania, were interrupted by the outbreak of the Civil War. In August, 1862, he was appointed in the military hospital service as an Acting Medical Cadet, serving in various military hospitals up to the close of the war. Resuming his medical studies he was graduated from the University of Pennsylvania in March, 1866.

In May, 1867, he was appointed Assistant Surgeon, U. S. Army, with the rank of 1st Lieutenant, and thereafter his service was continuous and his promotion rapid. He received his Captaincy in 1870, was made Major and full Surgeon in 1886, and Lieut.-Colonel in 1900, during which time he saw much active field service, particularly during the labor strikes in 1877 and in the expeditions against the hostile Sioux in 1874 and 1890. During the periods 1882 to 1889 and 1893 to 1897, General O'Reilly was on duty at Washington, having been appointed Attending Surgeon in October, 1884. He was physician to the White House during President Cleveland's two administrations and a warm personal friend of the latter. At the outbreak of the Spanish-American War, General O'Reilly was appointed Chief Surgeon of the First Independent Division, and on May 20th, 1898, was commissioned Lieut.-Colonel and Chief Surgeon of Volunteers. He was in Cuba from November 16, 1898, to November 11, 1899, as Chief Surgeon of the Division on the staff of Major General Wade at Havana. During the war he was an active member of boards for selecting camp sites in the southern states and the cleaning up of Havana, and in December, 1898, went to Jamaica to study tropical hygiene in reference to the American occupation of colonial possessions. After his return he was Surgeon General of the Department of California until September 7, 1902, when he was appointed Surgeon General of the Army, serving until his retirement in 1909. He was a delegate to the International Congress for the Revision of the Geneva Convention at Geneva, Switzerland, in 1906. In 1903 General O'Reilly collaborated with Major William C. Borden in a monograph on "Military Surgery" which was published in the fourth edition of Keen's modern textbook. General O'Reilly was a man of exquisite personal refinement and he did much to elevate the personnel and status of the Army Medical Corps through his tact, his unfailing courtesy and his charming manners. He is survived by his wife, who was Miss Frances L. Pardee of Oswego, New York, and by his daughter, who is the wife of Captain Frederick B. Hennessy, U. S. Army.

Miscellany.

RESOLUTIONS ON THE DEATH OF DR. A. T. CABOT.

Whereas, Dr. Arthur T. Cabot has served the New England Hospital for Women and Children as Consulting Surgeon for 27 years, and

Whereas, In both public and private professional intercourse he has always been a loyal friend to women physicians,

Resolved, That the Medical Staff of the New England Hospital for Women and Children deeply deplores the loss of his knowledge, skill and kindly aid.

Resolved, That a copy of these resolutions be sent to Dr. Cabot's family and that they be published in the BOSTON MEDICAL AND SURGICAL JOURNAL.

NOTICES.

UNITED STATES CIVIL-SERVICE EXAMINATION.—The United States Civil Service Commission announces an open competitive examination for dental interne, for men only, on December 11, 1912. From the register of eligibles resulting from this examination certification will be made to fill vacancy in the position of dental interne at $600 per annum, with maintenance, in the Governmental Hospital for the Insane, Washington, D. C., and vacancies as they may occur requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The Department states that it reserves the right to terminate the appointment at the expiration of one year of service if it is deemed advisable to do so.

As no applications were filed for the examination for this position announced to be held on October 23, 1912, qualified persons are urged to enter this examination.

In addition to the many interesting cases presented, the dental interne is given an excellent opportunity for study and for doing experimental and research work in pathological, histological, and other laboratories of the institution.

Applicants are required to be graduates of regularly incorporated dental colleges, and applications will not be accepted from persons who have been graduates more than two years.

Statements as to training, experience, and fitness are accepted subject to verification.

Age, 20 years or over on the date of the examination.

This examination is open to all male citizens of the United States who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply to the United States Civil Service Commission, Washington, D. C., for application and examination Form 1312. No application will be accepted unless properly executed and filed with the Commission at Washington.

ARMY MEDICAL CORPS EXAMINATIONS.—The Surgeon General of the Army announces that preliminary examinations for the appointment of First Lieutenants in the Army Medical Corps will be held on January 20, 1913, at points to be hereafter designated.

Full information concerning these examinations can be procured upon application to the "Surgeon Gen-

eral, U. S. Army, Washington, D. C." The applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be convened.

The examination in subjects of general education (mathematics, geography, history, general literature, and Latin) may be omitted in the case of applicants holding diplomas from reputable literary or scientific colleges, normal schools or high schools, or graduates of medical schools which require an entrance examination satisfactory to the faculty of the Army Medical School.

In order to perfect all necessary arrangements for the examination, applications must be in possession of the Adjutant General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present thirty-five vacancies in the Medical Corps of the Army.

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—There will be a meeting of The New England Hospital Medical Society in the Kensington Building, Boylston Street, Thursday, Nov. 21, 1912, at 7.30 p.m. Dr. Anna Richardson will speak on "Medical Problems of Telephone Operating." Light refreshments after the meeting.

MARGARET L. NOYES, *Secretary.*

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at Masonic Temple, 171 Warren Street, Roxbury, Tuesday, November 26, at 8 o'clock p. m., sharp. Telephone, Roxbury 22753.

Communications: A Series of ten minute papers on Salvarsan and Syphilis.

"The Clinical Side of Salvarsan," Thomas J. O'Brien, M.D. "The Administration of Salvarsan," Arthur P. Perry, M.D. "Wassermann Reaction with Demonstration of End Results and Bacteriology of Syphilis," James F. Coupal, M.D. "Physiological Chemistry of Salvarsan," Alfred W. Balch, M.D. "Demonstration of a New Device for the Administration of Salvarsan," William J. McGurn, M.D.

Refreshments after the meeting.

BRADFORD KENT, M.D., *Secretary.*
798 Blue Hill Ave., Dorchester.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A meeting of the Society will be held in Sprague Hall, Medical Library Building, on Monday, Nov. 25, 1912, at 8.15 p. m.

Memorial to Dr. Maurice Howe Richardson.

DR. REGINALD H. FITZ,
DR. SAMUEL J. MIXTER,
DR. GEORGE L. WALTON.

Members of the Suffolk District Medical Society are cordially invited to attend.

ROBERT M. GREEN, *Secretary.*
78 Marlborough Street.

RECENT DEATHS.

DR. CLARENCE A. BAKER, of Yaphank, Long Island, N. Y., died on November 8, at the age of 50 years. He was graduated from the College of Physicians and Surgeons, New York, in 1885, and was health officer of the town of Brookhaven and county physician for Suffolk County.

DR ROBERT FERGUSON CHAPMAN, who died of pneumonia on Nov. 12 in New York City, was born at La Plata, Md., in 1841. He was a graduate of Yale College in 1862, of the University of Maryland Medical School in 1865, and of the New York College of Physicians and Surgeons; and a member of various medical societies in New York, Maryland, and Virginia. He had practised his profession in Harlem, N. Y., since 1872. He is survived by one son, also a physician.

DR. ANTHONY FLEMING, who died on Nov. 3 at Lawrence, Mass., was born in 1873. He received the degree of M.D. from the University of Pennsylvania in 1895. He was physician to St. John's Hospital, Lawrence, a member of the American Medical Association and of the Lawrence Medical Club, and a Fellow of The Massachusetts Medical Society.

DR. ROBERT FLETCHER, who died on Nov. 8 in Washington, D. C., was born at Bristol, England. He qualified before the Royal College of Surgeons in 1844, and shortly thereafter emigrated to the United States. He served throughout the Civil War as surgeon of the First Ohio Volunteer Regiment of Infantry. In 1876 he had served as assistant librarian in the Library of the Surgeon-General of the War Department. He was an associate fellow of the College of Physicians in Philadelphia. He is survived by one daughter, and by one son, also a physician.

DR. L. B. GRADDY, who died last week at Lexington, Tenn., was born in 1845. He was for twelve years professor of otology, ophthalmology and laryngology at the University of Tennessee, in Nashville, and was formerly president of the Tennessee Medical Society and of the Academy of Medicine.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, Nov. 9, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	10	2
Chicago	572	142	Waltham	5	2
Philadelphia	—	—	Brookline	1	—
St. Louis	—	—	Chicopee	4	2
Baltimore	—	—	Gloucester	—	—
Cleveland	—	—	Medford	7	2
Buffalo	—	—	North Adams	9	3
Pittsburgh	—	—	Northampton	3	0
Cincinnati	—	—	Beverly	4	—
Milwaukee	—	—	Revere	0	—
Washington	—	—	Leominster	6	6
Providence	—	—	Attleboro	1	1
Boston	223	42	Westfield	8	3
Worcester	41	10	Peabody	2	—
Fall River	39	17	Melrose	4	—
Lowell	30	10	Woburn	4	2
Cambridge	33	3	Newburyport	2	—
New Bedford	35	12	Gardner	1	0
Lynn	15	5	Marlboro	3	0
Springfield	31	5	Clinton	4	1
Lawrence	13	7	Milford	—	—
Somerville	15	4	Adams	—	—
Holyoke	17	10	Framingham	0	—
Brockton	13	1	Weymouth	—	—
Malden	—	—	Watertown	2	0
Haverhill	12	2	Southbridge	2	0
Salem	11	2	Plymouth	—	—
Newton	7	—	Webster	2	0
Fitchburg	7	4	Methuen	—	—
Taunton	9	2	Wakefield	5	2
Everett	3	—	Arlington	—	—
Quincy	—	—	Greenfield	5	1
Chelsea	7	2	Winthrop	5	1

Address.

CONTRIBUTIONS OF THE NINETEENTH CENTURY TO A LIVING PATHOLOGY.*

BY WILLIAM J. MAYO, M.D., ROCHESTER, MINN.

I WISH to thank the Trustees of the Massachusetts General Hospital for the high honor conferred in asking me to deliver the Ether Day address for 1912, an honor which is emphasized by the eminence of the men who have preceded me in addressing you on previous occasions.

The nineteenth century introduced methods of investigation which made the practice of medicine one of the sciences. Previous to this time clinical observation with all its vagaries had constituted the basis of medical practice Anatomy, physiology, chemistry and pathology had been studied and valuable material obtained but as yet no sound theories had been advanced from which deductions applicable to the treatment of disease could be made.

The figure presented to my mind as the dominant one of the 18th century is that of John Hunter. Hunter was anatomist, physiologist and pathologist and the great surgical philosopher of his time. His vision was prophetic and he employed methods of experimental research which are a model for this day. Jenner introduced immunity by vaccination and in presenting his subject said that he thought certain hypotheses to be correct. Hunter wrote to Jenner and said, "Why think? Try it on a hedgehog and know." Hunter persistently and conscientiously studied the gross manifestations of disease so far as they could be studied by the unaided eye, and as a result of his work, microscopic pathology became definitely established. He made classifications and arrangements of findings in gross pathology, especially as related to surgery. These specimens were secured largely from investigations made at postmortems, and, because of them, pathology was taught, not as before from the standpoint of clinical observation but from the actual material taken from the diseased body. I believe it to be the duty of every surgeon who can do so to make a pilgrimage to the Royal College of Surgeons of England for the purpose of seeing the hundreds of specimens labeled in black with Hunter's own hand. Hunter's preservation of these carefully recorded specimens saved for teaching purposes was instrumental in establishing a school which made England the center of research in the field of scientific medicine, and this work resulted in an enormous impetus to scientific investigation the world over.

Pathology is the foundation of scientific medicine. Without a correct understanding of the nature of disease the practice of medicine as a science would not be possible.

For the purpose of this discussion pathology will be divided into two parts: First, a pathology representing terminal conditions, and which, for want of a better name, we will term "postmortem" pathology; and second, the pathology which deals with disease in the living when the condition is still curable, and which we will call "living" pathology.

Postmortem pathology furnishes valuable data for teaching purposes because it is obtained from advanced processes which best represent the characteristics of the condition and adds greatly to the science of medicine. Unfortunately, from a therapeutic standpoint, the data is obtained too late to make restoration to the normal possible.

Living pathology deals with disease during the period in which a restoration to the normal or physiologic condition can be brought about by appropriate therapeutic measures and to this end the art of medicine is directed.

In studying the nature of disease as exhibited by the terminal pathologic findings, an intense desire was inspired to deal with these processes in the early and curable stage. As a means to this end, anatomy, especially regional anatomy, became the subject of more accurate study. France led in this field of work, bringing anatomy to a high stage of development and with it a specialized surgical technic, thus in her turn becoming the great medical center of the civilized world.

In those early days operations were fraught with terrible suffering to the patient. They were undertaken only under dire necessity, and scientific method was sacrificed to speedy manipulation. The speed with which some of these old-time surgeons worked was phenomenal, major operations being performed in two minutes.

The knowledge acquired concerning gross pathology and gross anatomy introduced a great necessity out of which developed the priceless boon to humanity,—anesthesia. Influenced and aided by this discovery surgeons could now operate upon pathologic processes in the early stages and the art of surgery developed rapidly.

Although operations were performed upon the surfaces of the body and the extremities, the cavities of the body containing the important organs remained as a closed book to the surgeon. The pathologic changes found within the cranium, thorax and abdomen at postmortem seemed to indicate that surgery could not be developed to an extent which would enable the adoption of remedial measures.

Because of certain uncontrollable conditions with which surgery was surrounded in the early days, the mortality which followed directly upon even minor operations was appalling. Then came Pasteur, who, like Hunter, brought the sense of sight, but aided by the microscope, into the field of science. The discovery of the germ

* Delivered at the Massachusetts General Hospital on the sixty-sixth anniversary of Ether Day, October 15, 1912.

origin of disease made Pasteur the greatest benefactor the world has ever known. The only name in science which ranks with Pasteur, is that of Darwin, whose discoveries revolutionized the natural sciences and had a most profound influence upon scientific medicine. Virchow's splendid work had placed cellular pathology upon a sound footing, preparing the way to a prompt recognition of the role of bacterial agents in the production of disease. In Germany especially was the relation of the germ theory to the origin of disease studied zealously and many of the discoveries which reconstructed the foundation of medicine were the result. Germany thus in her turn became the center of the medical sciences.

With Pasteur's name must be associated that of Lister. The theory of the germ origin of disease suggested to Lister the explanation of certain phenomena in which he was greatly interested. Investigations followed which developed the crowning triumph of modern surgery,—antisepsis and led to the final achievement,—asepsis. Lister showed the application of the germ theory to the treatment of wounds and under his teaching operative procedures became comparatively safe.

The prevailing views concerning the pathology of the organs in the cavities of the body were not sound. Clinical observations gave rise to conflicting opinions and many symptom complexes were supposed to be pathologic entities. Attempts to clear up the confusion by postmortem observations were not successful, because autopsy did not disclose the condition as it existed during life, but rather the particular lesion which caused the death of the patient. In acute conditions this information was, of course, valuable, but in chronic conditions it often added to the confusion and gave rise to theories which later proved untenable. It is a true saying that "Few die from the disease with which they suffer during life." A few years ago no fact in pathology was considered indisputable unless derived from the postmortem and this attitude of the medical profession was responsible for much of the pessimism directed toward therapeutics.

A series of studies made by various investigators on terminal infections revealed the nature of the processes which cause death and produce many of the conditions found at postmortem—conditions which were previously believed to be a part of the original lesion instead of a sequence to it.

Anesthesia and asepsis enabled surgery to assume an important part in solving the discrepancies between postmortem findings and the nature of the disease as it existed during life. Surgery was positive and active, and one organ after another became the object of this form of study during life. Though not always successful from a therapeutic standpoint, surgical investigation did not fail to yield new truths to the science of pathology. In this manner our views concerning diseased conditions in parts previously concealed from the sense of sight were greatly advanced.

The abdomen was a locality well suited to surgical investigation and surgical procedures had become so safe that this great cavity could be opened and explored at a time when the disease was in a curable stage before secondary complications obscured the real nature of the malady.

Tait was the pioneer in abdominal surgery. He was a general surgeon who had become interested in the special branch of gynecology. This specialty at that time was largely concerned in the local treatment of diseased conditions and minor operations. It had some real triumphs to its credit in the removal through the abdomen of certain large tumors of pelvic origin. In general, however, the views upon the nature of diseased conditions in the pelvis of women were notably incorrect. Extra-uterine pregnancy was believed to be a broad ligament hematocele. Pelvic infections of tubal origin were supposed to be pelvic cellulitis. The Fallopian tube directly connects the outside of the body with the peritoneal cavity; various defenses exist to protect this portal against the invasion of bacterial agents but they are often inefficient and pelvic infection results. Tait opened the abdomen and demonstrated the exact nature of these debated conditions. He attacked these problems with vigor and greatly advanced our knowledge of pelvic pathology. Tait was a brilliant but eccentric man. Dogmatic in statement, his debates were characterized by an intolerance for the opinions of others which created much ill-feeling in the profession against him, but his contributions to the living pathology of the abdomen were greater than those of any surgeon of his generation. His later years were made unhappy by hasty and ill-considered statements in regard to vivisection.

The greatest original contributions to our knowledge of infections in the abdominal cavity came from a physician and pathologist. Before Fitz made known to the world the part played by the appendix in the causation of these infections, many supposed diseases in the abdomen were named and described. The most common pseudonym was "inflammation of the bowels." The appendix in both sexes, like the Fallopian tubes in women, is a weak link in nature's chain of defense and when diseased is capable of causing various manifestations from dyspepsia to a fatal peritonitis. Fitz made further important original contributions to the subject of intestinal diverticula and especially to the infections of the pancreas.

A third weak point in nature's defense is the gall-bladder and infections from this source are exceedingly common and vary from the colic of gall-stones to fatal involvement of the liver and pancreas. Knowledge in regard to disease of the Fallopian tube, the appendix and the gall-bladder is common property, and deaths from

these causes are now as rare as they were formerly common.

In spite of all research, we do not as yet know the essential cause in the production of malignant disease, but that chronic irritation is a factor in the causation of carcinoma cannot be denied. Cancer is found in all vertebrate animals and always in a situation in which the habits of the animal cause an irritation of the parts affected. We have recognized the fact that precancerous lesions due to chronic irritation occurred in organs like the skin, which are open to direct inspection, and based upon this fact irritated warts, moles, scars, etc., have been promptly removed. We seem, however, to have overlooked the fact that a like precancerous condition might exist in the internal organs. When modern methods of investigation brought the real facts to light, it was shown that chronic irritation of the internal mucous surfaces is as important in the development of cancer as it is on the cutaneous surface.

Cancer of the stomach, which comprises 30 per cent. of the total number of cancers occurring in the human body, was formerly known only from its postmortem characteristics, and the prognosis was wholly unfavorable. The demonstration of its living pathology has shown that it frequently arises in points of chronic irritation which are themselves capable of relief, thereby removing from the stomach the cause of a serious disability, distress and malnutrition, as well as removing a cancer menace. Instead of the hopeless condition known to postmortem pathology, cancer of the stomach is today curable in a considerable percentage of cases.

Cancer of the gall-bladder is seldom seen without gall-stone irritation. It is found in about four per cent. of those cases which come to operation for disease of the gall-bladder. The danger attending an operation for gall-stones in the early stage does not exceed one-half of one per cent. The patient with irritating gall-stones appears to have eight times the possibility of death from cancer that he would have in their removal.

In cancer of the large intestine, the irritation caused by material which has escaped into small mucous pockets or diverticula exert a chronic irritation which is one of the rather frequent determining factors in the causation of cancer of the colon. A high percentage of the patients subjected to operation for the removal of cancer in this region have been cured.

Surgical investigation, like Hunter's pathology, was based upon the macroscopic evidence of disease. The surgeon exposed the parts to sight and, after making his examination, proceeded as appearances seemed to indicate. Unfortunately, correct information concerning the nature of the process could not always be obtained by such examination. The exact condition was revealed some days later by microscopic examination but at a time too late to benefit the patient.

By the aid of the microscope and frozen section, as perfected by Mixter and Whitney in this hospital, the surgeon's vision has been extended into the minute structures of the processes of disease during the progress of the operation. This innovation in surgical pathology is of the greatest importance since it enables the surgeon to be guided by the microscopic as well as the macroscopic aspects of the condition.

The sense of sight was also being brought to bear upon various organs by means of instrumentation as well as by surgical operation. The ophthalmoscope and laryngoscope permit exact investigation and supplant supposition with demonstrable facts. By the aid of the esophagoscope the esophagus is brought into view and the terminal portion of the intestinal tract can be viewed through the proctoscope and sigmoidoscope.

The urinary bladder, which was supposed to be so often diseased, was found upon inspection through the cystoscope seldom to be the seat of primary lesions, although for years subjected to unavailing treatment for secondary conditions. Based upon clinical findings, tuberculosis was believed to involve both kidneys in the large majority of cases, and it was therefore believed to be a hopeless condition from its inception. This conclusion was apparently demonstrated by the fact that both kidneys were usually found to be involved at postmortem, an opinion later disproved by means of the cystoscope and the ureteral catheter which in the majority of cases showed the disease to be unilateral until a late stage and the second kidney involved by a terminal infection shortly before death. This knowledge converted an incurable into a curable disease.

In the process of building up living pathology, experimental investigation has been an important factor. It reconstructed physiology through vivisection. Pavlov, Starling, Cannon and others demonstrated the nature of the digestive processes in the living, without which knowledge pathologic perversions could not be understood. The criticisms which, in the beginning, pursued the scientist in this field of research, is now passing away. More humane and highly scientific methods of investigation have gradually brought the fair-minded individual to view vivisection as a legitimate and, at present, the only sure means of obtaining certain important truths to aid in the preservation and prolongation of human life. As these methods continue to develop toward a more perfect science, so will adverse comment and opposition to its practice disappear.

Surgery within the cranial cavity and of the spinal canal has been greatly improved within recent years by surgical experimentation. The work of Horsley, Cushing and others has lighted up the gloom which existed in this field, and many intra-cranial conditions formerly consid-

ered hopeless have been converted into surgical triumphs.

In the thoracic cavity advances have also been made through knowledge obtained by experimental surgery. Methods of preventing the collapse of the lung upon opening the cavity of the chest have been evolved by Sauerbruch and Meltzer by means of animal experimentation which enables direct attack upon the lungs, pleura, heart and great vessels.

The work of Carrel, Crile and Matas in experimental surgery of the blood vessels reveals another field of scientific progress. Heretofore surgery has been associated with purely pathologic problems but it is now attacking problems in physiology. I will but mention the transplantation of organs, which has been successfully accomplished in animals, as one of the possible means by which diseases now beyond the reach of human endeavor may be relieved.

At the close of the nineteenth century a discovery which may be classed with anesthesia and the germ origin of disease was brought out. Roentgen added another means of extending the use of the eye to the study of disease, and the x-ray has disclosed many of those inner secrets which have heretofore baffled alike the clinician and the surgeon. This agent has made possible the investigation of numerous conditions which previously could not have been made without operation.

We can readily understand the importance of the x-ray in the development of a living pathology. For the first time in the history of medicine diseases of the bones and joints could be inspected directly, and at an early and curable period when a return to the normal was possible. By its aid fractures, dislocations, and similar traumatisms of the osseous framework could be restored without those deformities which so often occurred in the past.

The x-ray also added greatly to our knowledge of the hollow viscera and often revealed processes which heretofore were discoverable only by the aid of the knife.

Diseases of the thoracic cavity were marvelously revealed. Surgery could not claim the triumphs in the thorax it had achieved in the abdomen, and until the x-ray enabled us to view the heart, lungs and pleura, our actual knowledge of the living pathology as it might occur in this region was less than in the abdomen. Even in the cranial cavity with its dense covering the x-ray has been valuable in locating tumors and other diseased conditions.

One far-reaching result of these newer methods of investigation has been the development of medicine as a whole. Specialists of the past generation attempted to divide man into parts for examination and treatment. Today our subdivisions are more minute because of a wider knowledge, but no part stands alone as in days gone by. So vast is the extent of knowledge to be gained of disease that no one man can hope to accomplish more than a small share during his lifetime. The old-time family practitioner has passed away and with him has passed individualism in medicine.

By what means can this great accumulation of the knowledge of disease be applied to aid individual patients? There is but one answer to the question,—coöperation in medicine. Medicine must no longer be practiced individually but by groups of men, each one bringing the results of his work and studies to bear upon the case. In no other way can the patient receive the benefits to which he is entitled. How this coöperation can be satisfactorily brought about is our present problem. In foreign countries the state has been the controlling agent. Resources of medicine are brought to the aid of the sick by coöperative effort through the various clinics. Unfortunately this privilege is accorded only to the charity patient and the poorer working classes. The so-called well-to-do are not eligible to this form of treatment and are forced to the private clinics, many of which have not the necessary facilities for diagnosis and treatment.

In our own country the initiation of a progressive policy appears to be coming from the medical profession. The staff of our large hositals coöperate in the treatment of charity patients quite as is the custom abroad, but there is a strong tendency toward coöperative service for the private patient as well, and groups of men are joining their forces for this most beneficial purpose.

The nineteenth century worked for the individual. One by one each disease was investigated and the results applied to the relief of the individual patient. The twentieth century starts out with a broader conception of the function of medicine. It is working for the masses in the prevention of disease. Care of the public health has become the most important duty of the state.

What is practically a society for the study of medical history has been established in London after many years of hesitation and delay. It starts under good auspices as a section of the Royal Society of Medicine, and the first meeting will be held on Wednesday, Nov. 20, at 5 p. m. Similar societies have long been in existence in the United States, in Germany, and in France, with the happiest results. It is intended to give a wide interpretation to the term "medical history," and it is hoped that exhibits will be a feature of the meetings. There will also be an educational aspect, and one or more lectures will be delivered annually by recognized authorities on the subject, and all practitioners and medical students will be at liberty to attend them.—*British Medical Journal.*

Original Articles.

THE TREATMENT OF PULMONARY TUBERCULOSIS BY ARTIFICIAL PNEUMOTHORAX, ACCORDING TO THE METHOD OF FORLANINI.*

WITH A REPORT OF TWENTY-ONE CASES.

BY GERARDO M. BALBONI, M.D., BOSTON.

PROF. CARLO FORLANINI of the Royal University of Pavia advanced for the first time in 1882 a theory for the treatment of pulmonary tuberculosis by creating a closed artificial penumothorax on the diseased side. For various reasons he did not make known his first attempts at treatment with an artificial pneumothorax until 1894 when he brought the matter before the International Medical Congress, held at Rome. A report of this soon after appeared in the *Münchener Medizinische Wochenschrift*.

Between 1882 and 1894 he made many experiments in immobilization of the lung, both on animals and on human beings. He first used as media various liquids, but, finding that they gave rise to serious disturbances, discarded them and began to experiment with oxygen and air. He found that oxygen was too rapidly absorbed to be of any value and that air gave little better results. He then turned to nitrogen, which seemed to answer the purpose, and has since continued its use.

In 1895 before the Italian Congress of Internal Medicine he reported the first clinical cure of an advanced case of unilateral pulmonary tuberculosis. This was a case that had developed a spontaneous pneumothorax and Forlanini simply maintained the pneumothorax complete by frequent replenishings.

Strangely enough, in spite of his experiments and success, the work of Forlanini remained practically unnoticed and no one, even in Italy, except his assistants, took up the work. He made no other report on his method of treatment until 1906. Before 1890 he began in his clinic at the University of Turin the artificial pneumothorax treatment of tuberculosis, and during all the intervening years continued to use this therapeutical method both in his clinics, at the University of Turin and at the University of Pavia, and in his private practice. During all this time he was gradually perfecting his technic and closely observing the different difficulties that arose, devising methods of overcoming them and closely studying his cases.

It is interesting to know that in June, 1898, an English physician, Dr. Stuart Tidey, noted for his treatment of phthisis by external compression (Piorry method), was present at a clinic given by Forlanini, who, after the clinic, showed him other cases he had under treatment and the pneumothorax apparatus he was then using. In November, 1898, a London paper, the *Outlook*, commenting favorably on the results obtained by Murphy on a few cases which he had treated with artificial pneumothorax ends with the following: "Curiously enough, an English physician, Dr. Stuart Tidey, has worked out a similar method independently, and only a few weeks ago discovered it in active and highly successful operation in San Giovanni Hospital, Turin, where it had been instituted nearly ten years before by Dr. Carlo Forlanini." Very little was done in Italy outside of Forlanini's clinic, until lately, when T. Bresciani, Antonini, Orlandini, Fontana, Maffi and others have taken up the work.

This method of treatment has also been adopted and the practice and theory of the method studied by others in countries other than Italy.

AMERICA.

J. B. Murphy of Chicago reported five cases in 1898. These were all unilateral cases and at the time of the report had been under observation but a few weeks. The technic was quite unlike Forlanini's. Murphy used the incision method and introduced large quantities of nitrogen at once, in amounts ranging from 1200 c.c. to 4500 c.c., repeating the injection after two or three weeks. At that time Murphy said: "I do not consider that it is indicated or practical in advanced or chronic tuberculosis, as the fibrous tissue deposited in the lung will not permit the compression of the lung, nor will the pleuritic adhesions allow the injection of gas. So far no conclusions can be drawn as to the ultimate results of treatment."

The next year Lemke reported a number of cases, and continued to treat patients until the time of his death in 1901. Schell of Indiana reported a case of hemoptysis in 1899, in which he had induced a pneumothorax.

Except the little done by Harris and Mary A. Lapham no one seems to have taken up the work from 1899 until 1911 when Robinson and Floyd of Boston reported their series of twenty-seven cases and these clinicians' results were excellent. Robinson who has made a special study of chest surgery improved the technic and simplified the apparatus. The poor results obtained between the above dates, I am inclined to attribute to the technic used and its difficulties.

GERMANY.

In 1906 Professors Ludolph Brauer, Spengler of Davos and Adolph Schmidt took up the work, made clinical reports and advanced theories as to the manner by which this form of therapy acted. With the exception of Forlanini, Brauer has done more in this work than anybody else. These men followed Murphy's technic and at the same time attempted to improve Forlanini's. They treated advanced cases, in which an unfavorable and fatal prognosis had been pre-

* Read at the annual meeting of The Massachusetts Medical Society, June 11, 1912.

dicted, yet in many instances with brilliant results, successfully refuting Murphy's conclusions as to its indication and practicability.

Other clinicians have followed Brauer, including Klemperer, Konzelman, Shreiber, Wurtzen, Wellman, Sampson and others, and all have obtained good results. Many have discarded the initial incision and now follow Forlanini's puncture method in preference to Brauer's and Murphy's incision method. Brauer in a recent work on this subject reports 102 cases and his bibliography comprises over 400 works consulted showing the attention this line of work is attracting, especially abroad.

FRANCE.

Dumarest and Dessier were the leaders in France and have been followed by J. P. Murat, Balvay, Argelin and M. Paul Courmont, and others. All of these men have used Forlanini's puncture method with uniformly good results.

DENMARK.

In 1907 Christopher Saugman reported success in a number of cases. Probably he, after Forlanini, has done more than any one else to improve the technic and render the method safe. This clinician improved the technic by the addition of a manometer which measures intrathoracic pressure. It also indicates when the needle is in the pleural cavity by respiratory oscillations shown on the manometer. He also made improvements on the pneumothorax needle. He and his assistant, Begtrup Hansen, have since reported many successes.

ENGLAND.

It is claimed that about 1842 Carson, an English physician, then living in Liverpool, England, suggested a pneumothorax in the treatment of pulmonary tuberculosis. His experiments were, however, those of a physiologist. He showed that animals could live if an open incision were made in the thoracic wall, that permitted external air to enter the thoracic cavity, thus creating an open pneumothorax. But this idea was never really put into practice, or if it was actually attempted in an occasional case, results must have been disastrous, for the time of Carson, 1842, was before the era of antiseptic surgery. The serious nature of an open wound, the grave danger to the mediastinum and the inevitable infection of the pleura must have decidedly prevented second attempts.

Forlanini's therapeutic pneumothorax is entirely different, being based on certain personal views as to the nature of the phthisical process. It is a closed pneumothorax, and is followed by a definite technic, upon which the success of the method depends.

S. Vere Pearson, Herbert Rhodes, Claud Lillingston and Colebrook have recently reported a few cases, but very little has been done there according to available reports.

TECHNIC AND PREPARATION OF PATIENT.

The apparatus is the one originally used by Robinson, and the pneumothorax needle is the author's modification of Brauer's or Floyd's. Hypodermic and pneumothorax needle are boiled and placed in alcohol.

In all of the writer's cases the puncture method as advised by Forlanini has been used. The preliminary incision method as advocated by Brauer has no advantages whatsoever, even for first introductions, but has some disadvantages in that it is a much more serious surgical procedure. The danger from infection and the possibility of considerable gas escaping into the soft tissue and producing a subcutaneous emphysema, especially after a paroxysm of coughing, might prove uncomfortable for the patient and troublesome for the physician as well as dangerous. A subcutaneous emphysema would necessarily interrupt the treatment until that had been absorbed. H. Brauns of Hanover has reported a case of suppurating fistula after incision and the production of a pyopneumothorax. Furthermore, the puncture method can be undertaken anywhere that the patient may be without great preparation. If the first puncture fails to find a pleural space further punctures may be made, inasmuch as they are not attended with discomfort to the patient.

As a rule treatment should not be begun in an office but either at home or in a hospital.

The patients come to the office for treatment in the morning and are instructed to eat a light lunch an hour before coming. The morning is chosen because at that time the patient is rested, usually in good humor and free from excitement. Forlanini's rule against giving women any treatment during the menstrual period, which he has found to increase the susceptibility to nervous symptoms, is also followed. Three or four patients come at the same time, thus permitting the physician to instruct them together and compare conditions.

After a careful physical examination the patient is prepared for treatment. (It is customary to take an x-ray of the chest when the treatment is begun and at frequent intervals during its course.)

The patient is placed in a comfortable recumbent or side position on an operating table or bed, with the arm raised. Any intercostal space below the third rib where the pleura is free and lung margin mobile may be chosen. It is preferable, however, to choose an intercostal space between the fourth and seventh ribs in midaxillary line, where the muscles are thin. It is well to separate the injection points a short distance from one another so that the resulting cicatrices will be small, regular and not massed in a small space.

Having chosen the spot for the puncture the part is cleansed (thorough asepsis being employed) and a solution of from ½ to 1 per cent.

of novocain with a few drops of adrenalin is injected under the skin as a local anesthetic, using a common hypodermic syringe with a long fine needle. In some cases, especially if pleural adhesions exist, 1/8 grain of morphia may be added to diminish the discomfort due to the pressure exeited by the nitrogen. Anesthesia is followed a few minutes later by the introduction in a perpendicular direction of the pneumothorax needle. It is inserted slowly, gently and firmly to a depth varying according to the thickness of the tissues. By introducing the needle slowly a chance is given the visceral pleura to retract. After reaching a certain depth the stilette is removed from the needle and the manometer opened. The introduction of the needle is continued gently until the parietal pleura is perforated, which is shown by a lack of resistance and respiratory oscillation in the manometer. One soon learns when the point of the needle reaches the pleural cavity. Possible puncturing of the lung is not a dangerous accident in itself, provided there is no introduction of nitrogen, because the puncture in the lung is immediately sealed up and causes no inconvenience, as has been clinically shown in doing thoracentesis.

When the manometer is opened the pneumothorax needle is held firmly in position. If the point of the needle is in the pleural cavity, and its lumen is not obstructed, the manometer will show the characteristic respiratory oscillations. If the characteristic oscillations are not obtained, the needle is moved gently inward or outward, or the stilette is passed into the lumen to remove any obstruction, until respiratory excursions are obtained, or if this fails after a few attempts, another spot is selected.

In some cases no sooner had the needle passed through the intercostal space than a marked depression was seen in the manometer reading with evident respiratory oscillations, indicating that the needle was in the pleural cavity. In other cases from the first there was a negative pressure without respiratory oscillations from which it was deduced that the point of the needle had not perforated the parietal pleura. Often I have been surprised at the ease with which the pleural cavity was reached, although I must confess I have had a few failures. In case the needle has become obstructed the manometer remains stationary without any change.

When the point of the needle is in a subpleural space, the manometer may show variations corresponding to the respiratory acts, but the pressure is positive. If in such a case one allows a little nitrogen to flow in, the pressure will actually be higher. In one case (J. A., No. 1) where I allowed 100 c.c. of nitrogen to flow in, the patient felt considerable pain which persisted for some days and necessitated morphia.

If the needle is in the lung there is no negative pressure, nor are there any respiratory oscillations.

Frequently after two or three introductions the negative pressure at the end of the introduction becomes positive, to become negative again before the next introduction.

By adhering to the rule, *Never let nitrogen pass into the pleural cavity before the characteristic respiratory oscillations are seen*, danger of fatal gas embolism is absolutely prevented and the needle is held in that position.

At times it has been found difficult to introduce the needle into the pleural cavity without the needle becoming filled with blood. This has happened to me in three different cases namely 9, 12, and 20. The needle was not in a lung vessel because it had not yet reached the pleural cavity as was shown by taking the needle out and after cleaning it introducing it deeper and obtaining the desired respiratory excursions.

On two occasions, cases 9 and 11, the needle had entered such a large blood vessel that the blood flowed back into the tubing and the manometer showed a rising pressure only.

No attempts were made to introduce nitrogen at such times and patient was told to return in a few days.

When the needle is for a certainty in the pleural cavity, the manometer is shut off and the introduction of gas commenced. Failure to obtain the respiratory excursion may be due to adherent pleurae, point of needle in lung tissue, point of needle in a band of adhesions, point of needle in a blood vessel. The needle may not be deep enough to have reached the pleural space. The needle may be blocked or the apparatus out of order.

At the first introduction small amounts are given. In this series the amount has varied from 50 to 500 c.c. At subsequent introductions larger quantities can be given, as the pleura soon becomes accustomed to this form of trauma and will then tolerate large quantities without discomfort. Later, quantities varying from 1000 to 2000 c.c. of nitrogen have been introduced with absolutely no symptoms. No matter how well a patient stands a first introduction of nitrogen, it is not well to give more than 500 c.c. I have seen two patients in great discomfort after a first introduction of 1000 c.c. With small amounts at frequent intervals the organs in the mediastinum are not subject to sudden displacement, but to a gradual accommodation. In this way, too, the sensitive pleura is not unduly stretched. As pneumothorax is produced gradually there is no sudden evacuation of cavities—instead these are emptied gradually thus preventing the infection spreading to sound lung. (Forlanini and Schmidt report a case each where sudden emptying of cavities infected sound lung.)

There is one exception to the rule of introducing small quantities of nitrogen and that is in hemoptysis. In such cases the pneumothorax is established in an emergency to arrest a serious hemorrhage. The pneumothorax, by strongly compressing the lung, probably diminishes the

arterial circulation, and certainly exerts a favorable action on the accident itself. Forlanini considers it of inestimable value in these cases. In case 14 after establishing a complete compression of the bleeding lung no hemorrhages reappeared although they had been frequent before resorting to the pneumothorax. In this series it was tried in three of the cases that had hemorrhages. In two no hemorrhages have since reappeared and in the other the hemorrhage was arrested but the patient succumbed to a mixed infection and to injuries received in a brawl.

In Case 14 severe hemorrhage was stopped by the introduction of 1800 c.c. nitrogen which apparently immobilized the lung. Four days later motility of lung returned and with it a second slight hemorrhage. 1200 c.c. nitrogen was introduced and this appeared sufficient to immobilize the lung.

Before removing the pneumothorax needle it is well to measure the intrathoracic pressure. If it be found excessive or should the patient complain of excessive discomfort, the pressure may be reduced by allowing the escape of part of the nitrogen thus reducing the tension. The pneumothorax needle is so constructed with two keys as to readily allow this.

After removing the needle pressure should be made over the point of puncture to prevent any escape of gas.

Patients return every day or two until a pneumothorax is produced that completely immobilizes the lung and obliterates the abnormal sounds. After this the patient comes at regular intervals for examination and for the replenishment of the nitrogen lost from absorption, so that the immobilization ought never to materially diminish.

Forlanini says, "It is a fundamental principle of the treatment and a condition *sine qua non* of success that that volume and pressure of the pneumothorax be gradually increased to the obliteration or almost complete obliteration of the respiratory sounds."

I try to wholly obliterate the respiratory sounds, but this is often impossible and naturally difficult to maintain. I am satisfied, however, in certain cases if I can wholly obliterate the abnormal sounds without discomfort to the patient, for then I know that the lung is being immobilized, and taking very little part in the respiratory act. One's practice in this regard must be controlled by the comfort of the patient and especially by the behavior and tolerance of the adjacent organs which are compressed or displaced. The manner in which the other organs are affected furnishes useful indications for the conduct of the treatment. Adhesions which limit the displacement of the heart, for instance, are beneficial, because they permit a pneumothorax at high pressure without displacing the heart much (Case 7). In a case of this series (Case 13) the x-ray showed many adhesions between pleura and pericardium—Dr. Robinson saw this case with me. We were able to introduce 1500 c.c. of nitrogen without perceptible variations of the apex beat. One week previous to this an incomplete pneumothorax from 1000 c.c. of nitrogen had been produced. Two days later I was able to introduce another 1000 c.c. without trouble.

After having established the pneumothorax the neighboring organs naturally feel its effects. If on the left side of the chest, displacement of heart and aorta may be marked and may reach a complete dextrocardia. (Case 14.) For this reason great care must be used and the pneumothorax produced less rapidly.

The other lung feels the effect of the near and pressing pneumothorax more than any other organ. In the treatment with pneumothorax it is likely to show intolerance, especially if diseased foci exist. This is due to the limit of displacement that the mediastinum can undergo in its functional space. In several cases Forlanini had to stop treatment and resume it with great care and very slowly on account of this displacement.

He says: "To obtain curative effects from the pneumothorax, the pneumothorax must be of a definite volume and be kept at that volume without material variation and interruption, so as to maintain immobilization of the lung during the whole period of treatment. A pneumothorax that does not completely fulfill these conditions will fail in its object. A residual motility of respiration or a recurrence of motility during the treatment would necessarily bring about a persistence or renewal of the destructive process."

This fact is well borne out by cases in this series. In these instances the patients were doing well, while they came every week for examination and replenishment of nitrogen; but when they did not report for treatment for from three to five weeks, they either lost flesh or their cough and expectoration became very troublesome. On physical examination it appeared that the pneumothorax was partially absorbed and its upper limits reached the fifth and sixth intercostal space anteriorly. The pneumothorax was again completed and maintained, then improvement again took place. Only with a well disciplined patient completely under the control of the physician can a complete and successful pneumothorax be maintained and then by frequent replenishment of nitrogen gas. Any patient receiving treatment should understand that it is dangerous for him to leave off treatment at any time and that he must remain under the surveillance of the physician until cured.

The treatment by artificial pneumothorax is distinguished from all other treatments in phthisis by this special characteristic—that it cannot be interrupted without meeting possible serious consequences.

It is evident that after having obtained immobilization there gradually takes place in the lung the process of repair; the contraction of the lung

is at first produced only by the pneumothorax, but later also by the anatomical modifications, that is, the obliteration of cavities and the cicatricial constriction. Now, if in this state of things, the pneumothorax is allowed to diminish, the resulting space not being occupied by the lung which is in part contracted and inexpansive, there is established in the pleural cavity an elevated negative pressure which will add itself as a new factor of perforation to the rekindled destructive process with the loss of immobilization. The obliterated cavities may be reëstablished on the edges or walls of these and of those of new formation. The pleuritic decompression will exert a traction outward which being ever placed in a position of increased tension will aid toward perforation.

In private practice to carry on the treatment to the best advantage to the patient, two or more physicians should take charge of the treatment, so that in case one is obliged to give it up through accident, the other can continue it.

Lowering of the diaphragm may give rise because of pressure on the stomach to temporary gastric disorders, which are slight and soon pass off. They consist of slight pain, intolerance of any quantity of food, fullness after meals and even vomiting. (Cases 9-10-12.)

Rapidity of absorption of nitrogen gas differs with the pathological condition of pleura and lung. According to Dr. Dumarest's experience, a healthy pleura absorbs 1000 c.c. of nitrogen gas a month. I am not prepared to accept this. In the diseased condition it is certainly more than this amount. In one of the cases of this series, after the introduction of 2500 c.c. gas, given in divided amounts in five treatments, the physical examination and the x-ray showed the pneumothorax to be complete and only 100 c.c. a week were used to maintain it. In other cases of this series, especially the old advanced cases, the nitrogen was absorbed so rapidly that it was necessary to replace the loss by introductions every few days.

The rapidity of absorption of nitrogen gas is affected by many factors, depending on the pathological condition of the pleura and of the lung involved, on the temperament and activity of the individual and the time of treatment.

The nitrogen is more rapidly absorbed where:

(*a*) The pneumothorax is not complete and the affected lung still takes active part in the respiratory movement.

(*b*) The greater portion of the lung is diseased especially if the process is bilateral and there is cavity formation, because a greater amount of nitrogen gas is needed to keep lung compressed. (Cases 7-9-10.)

(*c*) The individual is active, *i.e.* working or taking considerable exercise.

Absorption is slower where:

(*a*) The lung is completely compressed. (Cases 2-4-14.)

(*b*) The pleura is diseased, as from active inflammatory processes or adhesions. (Case 14.)

(*c*) There is an active inflammatory process in either pleura or lung.

(*d*) The patient is quiet.

The nitrogen gas when not held by adhesions in pockets tends to spread in a uniform manner around the lung and keep it compressed.

THEORIES AS TO THE ACTION OF PNEUMOTHORAX.

It is a well known clinical fact that phthisis not rarely assumes a favorable course if the affected lung becomes compressed by a pleural exudate or by a spontaneous pneumothorax. Forlanini's theory, however, is a complex one based on personal conclusions regarding the nature of the phthisical process, from which it is a natural deduction that the absolute immobilization of the lung necessarily inhibits the destructive process.

The theories advanced as to the cause of action of therapeutic pneumothorax are based on the mechanical immobilization of the lung and the diminished circulation resulting therefrom.

The compressive action of the penumothorax brings about its results in accordance with the general precept of surgical therapy, that the reparation of the solution of continuity demands the permanent evacuation of the contents and the bringing of the walls into contact. Forlanini's theory is that the destruction of pulmonary tissue and the resulting cavities are nothing less than solutions of continuity which do not heal because they are never completely emptied, but are, on the contrary, kept irreducibly gaping or open by the relative rigidity of the thoracic cavity. A properly produced pneumothorax frees or separates the lung from the thoracic wall, immobilizes and compresses it, reduces the cavities and empties them and by the coalition of their walls brings about their obliteration and cicatrization.

Another factor also comes into play. Whatever may be the manner of entrance into the lung of the pathogenic germs that cause phthisis, the successive spreading of the process comes about usually through the respiratory tract. Some part of the septic material, as it is being expelled during expiration, is easily drawn back into the lung during inspiration, causing the continuous formation of new foci of infection. The immobilization of the lung overcomes this, the prevailing, if not the only, cause of the continual spreading of the process. Thus the other lung, if not already diseased, is protected, spreading of the infection into other parts of the body, such as larynx and intestines, may be prevented, and a means of combatting the spreading of the disease in general may be secured.

Shingu has shown experimentally in animals that in the compressed lung there is a lymphatic stasis. With the elimination of respiration, which

is an essential factor in the maintenance of a regular lymphatic circulation, a stasis of lymph naturally results. From the lymph stasis a diminution of the absorption of the toxins on the part of the organism and a general improvement in the condition of the patient are produced.

Pigger and later U. Carpi, studying the opsonic index in patients that were treated with artificial pneumothorax, proved that the opsonic index is increased if the diseased lung is immobilized, providing complications of a tuberculous nature do not arise elsewhere. The opsonic index, after certain initial oscillations, reaches in a constant manner a value above normal, which will still show increase corresponding to the new introduction of gas.

H. Brauns of Hanover by using the rapid precipitation method of Spengler, has observed an increased immunizing value of the blood after each introduction of nitrogen.

PATHOLOGICAL CHANGES.

The pathological observations of cases that have come to autopsy, the patients dying of intercurrent diseases, have given anatomical proofs of recovery through cicatrization of all the destructive lesions of the lung which had been treated with artificial pneumothorax. Forlanini, in the microscopical study of three cases noticed that the compressed lung undergoes great modifications. First, he noticed atelectasis; second, an extraordinary tendency to the formation of connective tissue and formation of hard masses about the bronchi, large vessels, and in the pneumonic foci; third, the formation of a capsule about the old tuberculous foci and a tendency to cicatrization; and finally, very few recent tuberculous foci were visible and these contained very few tubercle bacilli and there were no giant cells. Grætz, Drasche and Wurtzen have since confirmed these findings.

It can be readily understood that the anatomical healing of the lesions comes about slowly. It is the work of months, or even years; it may never come about or it may be partial. There takes place in the lung what is noticed in the articulations and in the bones in cases of tuberculous ostitis and arthritis, with immobilization by apparatus. After a long time the tuberculous tissue is fixed, is organized and is absorbed. At this point the cavity walls are reduced to a state of a granulating wound, coalesce, cicatrize and then the healing process becomes definite. But before granulation and cicatrization and the formation of connective tissue about the tubercle takes place, a long time elapses and during all this time the pneumothorax must be maintained, always at the proper volume and tension, and this means not several weeks, but many months. Here lies the great difficulty, for patients as a rule are very loathe to remain under treatment as soon as symptomatic relief is obtained.

How long shall the pneumothorax be kept up? Authorities differ, but all agree it must be kept up for a long time. It is not possible to give a definite length of time which will include all cases, so much do conditions vary; but when we consider the gravity of the tuberculous lesions in advanced cases of phthisis and the persistent formation of cavities, it is apparent that it must be kept up for a long time; two years or more. So far, for the most part only advanced cases have been treated. In 1908 Forlanini advised treating very early cases that had not done well with the present forms of treatment. One of the cases, No. 4 of this series, is of that type. This patient feels perfectly well, and has not received any injections of nitrogen for seven months. The last x-ray showed a pneumothorax fairly complete, but one which had diminished from an x-ray taken two weeks previous. No more injections will be given to this patient unless symptoms should develop, which, from the present condition of the patient, seems unlikely. The pneumothorax is being allowed to absorb gradually.

In another case of this series (Case 3) no injection has been given since July, 1911. The present condition is satisfactory. No tubercle in sputum, no cough, feels perfectly well.

On physical examination the pneumothorax is completely absorbed, a slight dullness and bronchial breathing at the apex still persist, no râles are heard. The lung has completely expanded. The process is inactive. After a clinical cure has been obtained, especially in early unilateral cases where lesions are slight, provided tuberculosis of the pleura does not exist, the pneumothorax may be allowed to gradually absorb. In such a case there is no reason to fear that any structural changes in the pleura, such as to compromise its function or to bring about adhesion of the layers of the pleura, have resulted from the long absence of contact between the pleuræ or their long contact with nitrogen.

Forlanini, however, insists that immobilization of the lung be maintained so as to prevent a rekindling of the disease as a result of the re-expansion of the lung. He has cases where he has been maintaining a complete pneumothorax for ten years or more by repeated insufflations in patients who are well and attending to their occupations. Forlanini says that the pneumothorax must be kept up indefinitely in the following cases:

1. In cases of advanced phthisis where there are extensive or disseminated foci, where a good part of the lung is involved and there are no large masses of lung free, lest adhesion of the layers of the pleura, especially if there has been a pleurisy, may result.

2. In cases where the other lung has lesions or is threatened.

3. In unilateral cases where the lesions are extensive, the healed lung is reduced to a contracted cicatrical mass, which cannot reëxpand so as to reoccupy the thoracic cavity when the

pneumothorax is absorbed. It is kept up for the purposes of preventing deformity of the thorax and the subsequent displacement of organs in the mediastinum and in those adjacent to the diaphragm.

He advises maintenance of the pneumothorax because the absorption of the pneumothorax would be of little advantage and because the replenishing of the pneumothorax is a measure which is required less frequently as time goes on, and the trouble is amply compensated for by the good results obtained.

During the course of treatment, which may have extended over months, the pleura has been in contact with the nitrogen gas, that is to say, in a medium not physiological. This long contact may cause structural alteration to take place in the parietal and visceral pelura, and these coming into contact, cement and thus partially or totally obliterate the pleural cavity. This would naturaly prevent later treatment by artificial pneumothorax or render it more difficult. Evidence shows that the compressed lung retakes its normal function once it has reëxpanded. (Cases 3-5-7.) However, if the process has not completely healed, the reëxpansion of the lung may cause the process to become active again. (Case 5.)

In the tuberculous healed lung there exist abnormal anatomical changes and the lung is the lung of an individual predisposed to the disease because he has been once ill with tuberculosis. The tuberculous process may start up *de novo* a second time. If this comes about, the treatment can be instituted again.

The discontinuance of a pneumothorax especially in unfavorable sanitary conditions will only result in bringing about new areas of infection; while the epithelium of the bronchial mucosa and the pulmonary stroma weakened from the ischemia, from the compresison and the inertia, have not taken up their vitality and their ordinary phagocytic function. In this and in bad hygienic surroundings lie the causes of the failures in the cases where the treatment is undertaken for only a short time.

In 1908 Dumarest visited Forlanini's clinic at Pavia. After the clinic Forlanini took him to see a young woman with whose history he had been made acquainted. She had had a complete pneumothorax for the last ten years. During this time she married, had a child and kept a notion store. When he entered Dumarest saw a pretty, gracious person in the best of health. Dumarest asked why he still kept up the pneumothorax. "Ah! me dit-il, c'est qu'une jeune et jolie femme tiente a' la symétrie de son thorax."

What influence does the placing at rest of one lung exercise on the other lung? Forlanini has shown that a properly proportioned pneumothorax of one side does not injure the noncompressed lung. If the noncompressed lung is healthy it is capable of carrying on alone the respiratory functions of the organism and doing the work of both lungs. If the noncompressed lung is diseased and the lesions are not so extensive as to allow compensatory respiration for the compressed lung, Forlanini claims that its lesions may heal or be arrested through a mechanism not easily explained, but which is exactly opposite to that by which a cure is effected in the compressed lung, that is, by increased respiration and increased blood and lymphatic circulation. From these things a better nutrition results that protects those portions of lung not yet affected. The site and nature of the lesion in the noncompressed lung is of more importance than its extent. Apical lesions are not as dangerous as lesions situated centrally; an arrested process may carry on the respiratory functions without giving rise to untoward symptoms. The ingenuity of the physician will be taxed to the utmost in dealing with a bilateral case presenting an extensive active process of one lung and an active process in the other especially if the lesions are centrally located and the patient is septic. The lesions may be aggravated by the increased function or by the amount of toxins liberated, so that the treatment may have to be discontinued for a time, or abandoned, or conducted very cautiously.

Whenever in the noncompressed lung there has been evidence of consolidation, following the injections of nitrogen, the dullness of percussion and the resistance were less marked. Oftentimes the dullness disappeared entirely and the breathing throughout the lung took on a harsh and exaggerated character. The clinical experience of Forlanini, later observations and the cases of this series are the basis for this opinion.

Does a complete pneumothorax inconvenience the patient?

All the cases of this series with two exceptions (Cases 15-20) are working and have kept at some work continuously during the treatment. The cases of this series, of which we possess a radiograph showing a complete pneumothorax, prove that they are not inconvenienced in the least. Some of these patients do the work of a common day laborer.

Case 5 is a furniture dealer, having to carry considerable weight up and down flights of stairs. He has not lost a day's work since he has been under treatment.

Case 12 ran a distance of fifty yards the other day without any inconvenience. This is a thing he had not dared to do since he became sick a year ago.

Case 4 had a complete pneumothorax of the right lung previous to her marriage; that is still complete and she is now seven months pregnant and does all her own work.

Case 1 does all her work.

Case 14 is up and about with a complete pneumothorax of the left lung. He experiences no trouble from it whatever.

(To be continued.)

UNDER ETHER.

BY HENRY TURNER BAILEY, NORTH SCITUATE, MASS.

[As truthful a record of actual experience as one is likely to make within twenty-four hours thereafter.]

"TAKE a deep breath," said the voice of the house physician. I obeyed, not only because my condition made a critical surgical operation necessary, but because at last after forty-two years of health, I was to have the experience of undergoing an anesthetic, an experience about which I had long been curious.

"Take a deep breath." As I responded to this oft-repeated injunction, it was with the determination that I would be as alert as possible and note every phase of my experience so long as consciousness remained. The odor of the ether was not unpleasant; its effects were rather soothing. I certainly was neither uncomfortable nor unhappy. Presently I noticed that he who was administering the ether, lifted my lip to ascertain how far I had gone on the road to oblivion. "I will save him the trouble of making further experiments," I thought, "by tapping gently upon my left hand with the forefinger of my right, as they lie upon my breast." Each time therefore, after inhaling, I gave that signal.

A few more breaths and my attention was attracted by a distant ragged cloud of dull yellow, slowly approaching from the direction of my feet. The flickerings of the cloud were accompanied by a noise not unlike the churning of an automobile. As the cloud came nearer I noticed that its color changed. The vibration became more rapid; the color became green. The cloud increased in size, and approached with increasing speed; the color changed to green-blue and the vibrations increased in rapidity until they created a musical tone. The rush of the cloud was faster every second. I became conscious of the fact that it would soon overwhelm me. It had become brilliant blue and the musical tone had become higher in pitch as the speed of vibration had increased. "The changes are in the right order," I thought to myself; "the higher the vibration, the more violet the color will become." The cloud came on at terrific speed. "I am going," I said to myself, as I tapped with my finger for the last time. "Good-bye. God take care of me." Just then the sound became piercing like the sharp escape of steam under high pressure, and the cloud, now vast and intensely brilliant violet, broke over me like a great surge and swept me away with it into the dark.

It was perfectly still here and the darkness was warm like the darkness of an August night without stars. I was moving with the speed of a carrier pigeon and in a straight line. How far I went, I will not attempt to say, but it seemed an immense distance, perhaps as far as to the moon or to the sun. Then my speed slackened gradually and in a few moments I found myself still, perfectly at peace, resting upon a soft cloud.

Almost as soon as I was still I became conscious of music, not a tune, but a deep, rich, minor chord, as soft as the sound of the distant sea. It came welling up from beneath, growing stronger and stronger every moment. At first I listened languidly to this pleasant hum in the darkness, but soon I became aware that the music had a meaning for me; I began to be troubled with the sad wailing quality of its chords. "What can this mean?" I said to myself, and the next moment I knew that it was the sad music of the whole world of humanity, ascending to the Eternal in this wondrous minor strain. I began to feel that I alone knew what this meant, and that I alone could voice the inarticulate human cry to the Infinite. The music grew louder and more insistent. I felt that I must speak. The next moment I knew that I must ask a question. "Oh, what is to be the outcome," I faltered, "of all the pain, pain, pain?" As I began to speak, I was conscious of a triple pulsation in the music, and when I said "pain" the first time, I knew that I must say it a second time, and a third time. When I said the word, I felt within my own heart something of the pain of the world; when I repeated it, it seemed almost impossible for me to repeat it again, and yet I knew I must; when I began to say "pain" for the third time, summoning all my power for the effort, I heard a sweet strong voice, taking up the word with me. The sound of this voice, strong and rich and soft, like a silver trumpet, strengthened me, and relieved me; but my relief became surprise and a positive joy when the voice said, not "pain," as I thought it would, but "peace," so that both words were heard distinctly together. As I rested after the great effort I had made, happy in the consciousness of this solution of one of the dark problems of the world, that silver voice following the triple pulsation of the music (now changed to a triumphant major chord), repeated the word "peace" twice more.

Suddenly the music fell back into the minor, and I found myself saying, "And what is to be the response to the world's sigh, sigh, sigh?" And again the wondrous voice joined my faltering voice with the third word, the music changed again, and the voice sang triumphantly, "Song, song, song." "And what is become of the world's sin, sin, sin?" And the voice sang to yet more triumphant chords, "Solved, solved, solved." "And will there be any answer to the everlasting doubt, doubt, doubt?" "All that will be done, done, done," sang the voice. "Then after all," I said, with such happiness as I never knew before, "everything will be all right." In the darkness I was conscious of an arm softly placed across my shoulders and of a hand that patted gently my right arm as the triumphant voice replied, "Right, all right." "Oh," I exclaimed in my joy, "if they only

knew what I know, they would all be willing to wait, wait, wait;" and "wake, wake, wake," thrilled the divine voice, accompanied, it seemed to me, by a chorus of infinite numbers with such music as I never heard before. "Wake forever . . . forever . . . forever more . . . amen." The last "forever" seemed far away. The "more" was like the echo of a whisper, the "amen" floated to me just heard across infinite spaces, for I was again moving with tremendous speed away from the music, through the soft, warm dark.

After traveling millions of miles, I was conscious that the movement had changed and that instead of proceeding in a straight line, I was moving in great circles round and round as majestically as an eagle sails upon the air. I knew also that each time I returned to the point where the circular movement began, I passed below the path of my previous circle. I was approaching my place again, following the path of a great helical curve downward through space. I next became conscious that somehow I had again acquired my body. It was flat upon its back swathed about like an Egyptian mummy and resting quietly upon a low pedestal like a couch. I was conscious that within this kah I reclined, deprived of the use of hands and feet, passing swiftly onward and downward head foremost upon the course prescribed for me, impelled from within by the original energy which moved me away from the music with such irresistible power.

I had completed only two or three more of the great circles when I became aware that I was passing through wells of gray light which seemed bored down into the darkness from above. The sensation as I passed through these, one after another rapidly, was not unlike the sensation one has in passing into New York City through the northeastern tunnels, when the light of the ventilating shafts flashes into the car as the train glides beneath. I remember of making this comparison at the time. These light wells seemed to be located upon one side only of the circles. I soon passed out from them, made the great sweep of the remaining arc, and plunged into them again lower down. This time as I went through one after another I caught the faint sound of some sort of a response at the upper end of the wells like the muffled ringing of bells of differing tones. As I passed out of the region of the wells a second time and swung about to enter it again, I began to wonder what these wells could mean. The third time through them to my surprise I passed beneath the bottom of two of them. I remember distinctly noticing the space between my face and the well bottom as I passed. It might have measured two or three feet. I noticed also that when I passed beneath a well, there was no response at the top. Having completed another circuit and entered the region of the wells for the fourth time, I was startled to notice that passing through the wells somewhat retarded my progress. The motion of the kah as it swung out upon the free side of the circle was slower. "If these wells are deep enough," I thought, "they will prevent my returning to my place." I began to be alarmed. But this time I passed beneath two other wells, and the next time round, to my relief, I passed beneath the bottom of another. As I swept out upon the free side of the circuit again I heard distinctly the voice of my wife saying, "Now you know what an unspeakable relief it is when the wells fail to report." "Indeed, I do," I replied; "ah, you good woman, you have passed this way before me, haven't you?" It was with grave apprehension that I approached the wells again. "I will give more attention," I thought, "to the reports to see what they mean." This time I passed through but three of the wells. I strained my ears to catch their reports, but the wells were now so deep and the sound so far away that I could not be sure. I felt, however, that the sounds were made by voices, not by bells. Again the kah passed outward for another return. The motion was slow. "If these three wells are much deeper," I thought, "I am a dead man. Now I know what they are. These wells have been sunk by the scientists to entrap the soul. They have long thought to discover the secret of life. The shallow wells were the earlier attempts, all of them inadequate; but these deeper wells are the wells of modern science. Dead or alive I shall soon know whether they have succeeded in discovering the secret of life." A gain there was a flash as I passed through one of the remaining wells. To my infinite relief I passed beneath the bottom of the second, but the third rang a clear signal again. I heard enough to know that it gave a chemical formula. Slowly the kah swept out upon another circuit. It came back, passed through the first well, passed beneath the second again, but alas, through the third. "Is it possible they have trapped me?" I thought. Again, slowly, with painful apprehension, I turned another spire. Again I passed through the first well, but to my inexpressible relief, I passed this time beneath the bottom of the last well. I heard a disappointed cry of the voice above, and knew that all the watchers had now gathered at the mouth of the one remaining well. Slowly, and burdened with the darkest forebodings, I completed another circuit. As I passed through this deep well again, I heard distinctly a voice exclaim, "P7 Y4." Again a great circuit was completed and again I passed through the well. This time the voice, exultant, called loudly, "P7 Y4." "The third time never fails," I said to myself. Almost exhausted with fright, I awaited the next circuit. The kah approached that awful well. Could I pass through it again and live? God help me! I'll die with my eyes open at least. I looked upward. O, joy unspeakable! I was passing beneath! clean below

the bottom of the last well. I heard a disappointed voice far above me exclaim, "Well, by Jove; he has gone below." Upon the next circuit, I passed beneath the well again, and upon the next, yet again; the speed of the kah increased, the circuits grew smaller and yet smaller. The kah fairly rushed about them like mad. At last it spun upon its axis like a chip caught in a whirlpool and grounded safely upon some solid resting place in the dark.*

As soon as I had recovered from the dizziness which this final movement had induced, I ventured to open my eyes. The darkness had become luminous. A golden yellow light was everywhere. I closed my eyes again and thought about my return. When next I opened them, I saw above me a human face, very beautiful, but indistinct, like a portrait by George Fuller. I closed my eyes again. "That face is beautiful," I said to myself, "but unfamiliar." Again opening my eyes, I saw not only that face but another. This time the faces were more distinct and I knew that I had seen the second face somewhere before. As I closed my eyes again, I was conscious that the forefinger of my right hand tapped the back of my left hand, and then that my right hand slipped off my body to my side. It was an extraordinary sensation. Just then one foot fell off the other. "Hello," I said to myself, "my body is coming alive again," I wondered if I could move a part of it? I tried and found that I could. Again I opened my eyes. I now recognized the second face as the face of the head nurse whom I had seen somewhere long before, and that the first was the face of another nurse, for she wore a white cap. The faces smiled, but I closed my eyes wearily, and attempted to think just what had happened to my body. Then I remembered the lobby of the operating room and the ether can. I recalled the fact that I was to undergo an operation. I must have been through with it. I wondered how long my spirit had been away, and opening my eyes I said to the head nurse, "What time is it?" "Half-past four," she replied. I knew then that I had been gone from the body four hours and a half. Again I closed my eyes. Into my mind floated the words of an old friend, a fine brave fellow who had passed this way several times before me, and that moment I felt them to be true: "They may etherize the body, but they can't touch the immortal spirit."

*I have been told that the surgeon who performed the operation is in the habit of striking the chisel three times when making each cut. This might account for the triple pulsation of the music I heard. After the operation I was brought down several flights of stairs to my own room and placed in bed. The movement of my body may have induced the movements of the kah. The experiences I have recounted seemed to me at the time, and still seem in retrospect, as actual as any of my conscious hours. They remain clear and vivid. They seem different from the stuff that dreams are made of. The gathering of others' experiences under ether, and the careful comparative study of all of them might yield something worth knowing. H. T. B.

Medical Progress.

RECENT PROGRESS IN OPHTHALMOLOGY.

BY E. W. CLAP, M.D., BOSTON.

SCOTOMATA IN TABES.—HOOKWORM DISEASE.—MONOCULAR DIPLOPIA.—SALVARSAN IN OPHTHALMOLOGY.—OPERATION FOR RIPENING CATARACT.—CONGENITAL CATARACT.—INTERMITTENT EXOPHTHALMUS.—TENSION IN EXTERNAL DISEASES.—FATTY DEGENERATION OF CORNEA.

SCOTOMATA IN TABES.

(*E. Fuchs reviewed this subject.*)

Over 20% of all cases of tabetic atrophy present central scotomata. This has been considered not a sequel of tabes, but as a complication with a simultaneous retrobulbar neuritis.

The central scotomata is nearly always bilateral; at first it is small, round, and really central; at the same time the blind spot is enlarged. Afterwards the scotomata enlarges towards and then joins the blind spot, forming a horizontal ellipse. Red and green are lost in this area, and spots of absolute blindness occur or even a minute ring scotoma. Later the scotoma becomes larger and more absolute. The periphery of the field becomes contracted even when the acuity of vision is good, and then irregular encroachments follow till an indentation may join the central scotoma. In toxic amblyopia from tobacco and alcohol, the periphery of the field is normal and the color perception is normal outside of the scotoma. In toxic amblyopia the optic disc, normal at first, later shows temporal paleness. In tabes the discs are pale from the onset and the paleness spreads over the whole nerve head. In syphilitic retrobulbar neuritis the conditions are somewhat similar except that proper treatment usually checks the disease and pallor of the discs develops only late.

In tabes the early enlargement of the blind spot and the tendency of the scotoma to spread towards the blind spot, point toward a lesion of the papillo-macular bundle of nerve fibers. The color of the nerve is not the blue gray of simple atrophy but shows a yellowish color, and the edges of the disc may not be sharp, viz. there is a suggestion of a post-neuritic condition. A rare defect of the field is bitemporal hemianopsia which may be due to the tabetic degeneration occurring further back than usual in the chiasma.

HOOK WORM DISEASE.

Calhoun writes on eye complications of hookworm disease. Rampoldi in 1880 mentioned retinitis and in 1892 described retinal hemorrhages in this disease. Nieden in 180 cases said 8% had some retinal changes, and other writers have commented on the frequency of retinal

hemorrhages. These eye changes are partly due to the anemia and probably partly due to a toxin. The elder Calhoun in 1904 attributed some cases of cataract in young people to hookworm infection and the present author adds some more cases which seem to justify his view that a toxin developed in this disease may cause cataracts.

MONOCULAR DIPLOPIA.

Wolfflin reports on all the cases he could find of monocular diplopia recorded in the last seventy years. The chief causes mentioned are polycoria and iridodialysis, subluxation of lens, irregular astigmatism due either to cornea (as from ulcer) or to lens, or to both together. Senile cataract sometimes has a polyopia due to the changes in the lens. Another group of cases he calls the anthenopic, although the cause he assigns is unequal contraction of ciliary muscle or pressure on the cornea by the lid. Cases are reported from injury to the brain and to brain tumor, but these are not easily explained unless the refractive media are injured, too. Hysteria furnishes some cases though a physical basis can usually be found in these. Bossidy reports an hysterical case with diplopia over the whole field of the left eye at first, and later in each eye and varied from time to time, sometimes suddenly changing its character. The case was carefully studied and was undoubtedly purely hysterical. A false macula is a doubtful cause. Then, too, regular astigmatism frequently causes monocular diplopia, especially when the pupil is dilated. Diplopia occurs rarely in normal eyes, as the result of double reflection of the rays in the cornea, or as the result of decentration of the refracting media.

SALVARSAN IN OPHTHALMOLOGY.

Wiegman reviews the literature exhaustively and reports a few cases. There is much doubt as to the value of salvarsan in syphilitic parenchymatous keratitis. Unthoff in 18 cases found only 3 with doubtful improvement. Benda in 12 cases found no good result. Manzulti in 4 cases found no improvement. Wessely collected 70 cases from German reports in which the course of the disease was not influenced by the new drug; and numerous other observers report negative results. However a few found the drug of value in parenchymatous keratitis. In affections of the uveal tract due to acquired syphilis the reports are much more favorable, and here the majority find salvarsan of great value, though occasional cases resist it. As to retinal and nerve lesions due to syphilis the consensus of opinion is not favorable on the whole, though individual cases are reported yielding to the drug in a remarkable manner. Trantas had a case of ptosis of left lid and 4 days later complete paralysis of muscle applied by third nerve on the same side, following use of salvarsan for chancre of 3 weeks' duration. Such paralysis is extremely rare so early in syphilis. Stern found 3 cases of paralysis of ocular muscles in 500 syphilites, while 3 cases were found in 200 syphilites treated with salvarsan.

OPERATION FOR RIPENING CATARACTS.

One of the most important questions presented to the ophthalmologist is what to do for the patient with cataracts far advanced enough to render him helpless, but not ripe enough for a safe and successful operation. In the case of a person over 62 most ophthalmologists, in recent years, at least, would be willing to operate on an unripe lens. Admitting this to be satisfactory, there remain the people from 45 to 60 unable to earn a living or even be at all useful, from incomplete opacity of the lenses. Certainly none of the ordinary ripening operations are successful except in occasional cases, while natural ripening may take years.

Homer Smith has advocated a method, done before, but not just in his way, by which the lens can be shelled out fairly clear from the capsule and most of the sticky cortical substance got out of the eye. This consists in a preliminary capsulotomy six hours or more before the extraction. He does this with a knife like a knife-needle with a short bellied blade. With a dilated pupil he makes a vertical incision in the capsule and then a horizontal one crossing the centre of the lens and as long as the margin of the pupil will permit. He does not go deeply into the lens, and he tries to avoid losing aqueous, though this does no harm beyond making the operation more difficult if it occurs before the procedure is completed.

Many operators, from Von Graefe and Mannhardt in 1864, have punctured or cut the anterior capsule before extracting cataracts, and Drake-Brockman, 1884-1888, reported 2100 cases in which he did what he called capsule rupture. Several since then have done a similar operation but not with the direct purpose of ripening the cataracts.

Smith's operation may be done one day and the next day the ordinary extraction carried out without leaving in the eye, soft, sticky cortical substance which delays healing and favors the formation of secondary capsular cataract. Several surgeons have reported favorably on this procedure and the reviewer has tried it with satisfaction.

CONGENITAL CATARACT.

H. Kuhnt has reported on 1000 cases of congenital cataract, one-half of them operated on by himself and the rest by various surgeons, and has drawn some valuable conclusions as to the treatment, so often unsatisfactory, of this condition. He emphasizes the importance of general anesthesia in order to do carefully just what we wish. Whether we do an optical iridectomy or remove the lens is first to be con-

sidered, and while iridectomy is a safer procedure, few cases so treated get more than one-third normal vision, not enough for many employments. If we decide to remove the lens three points should be kept in view: to preserve the pupil intact, to avoid inflammation, distortion or adhesions of the iris, to leave the eye in such a condition that vision shall not lessen in the future. In 2 to 3% of the cases the pupil will not dilate well with a mydriatic. In such cases it is better to do an optical iridectomy or an iridectomy as a preliminary to removal of the lens. The first discission should be vertical and small (3 m.m.) not going deeply into the lens substance, in order to find how rapidly the lens will become opaque and swell. A rapidly swelling and disintegrating lens does harm both mechanically and by chemical toxins. If the first discission does not cause much swelling, we can either wait for slow absorption or in a few days do another discission, this time horizontal. As the opacity becomes nearly total, to shorten the waiting we may do a linear extraction. Swelling of the posterior cortical matter and appearance of the nucleus in the anterior chamber calls for immediate extraction.

As a rule the thickening and opacity of the capsule comes on more quickly and in a greater degree the younger the patient is, and the more of the anterior capsule and of the lens substance remain in the eye. Attempt must be made to get out as much as possible of the anterior capsule, and then later to remove the posterior capsule from the pupillary area. If after the first discission increasing opacity without much swelling appears we may safely do a linear extraction in six to eight days, at that time getting out anterior capsule as extensively as possible with capsule forceps. The author recommends irrigation of the anterior chamber to expel remains of cortical substance, and occasionally peripheral iridectomy to guard against prolapse of iris. The posterior capsule can be removed from the pupil (after healing of the keratome wound) by a discission, avoiding pressure on the vitreous and not going deep into its substance. This may be carried out with two knives. If we have a case with thickened, tough, capsular remains it may be necessary to draw this out, having first done a zonulotomy. For more complicated cases with iridocylitic-membranes, splitting the membranes and iris at the same time with a Graefe knife or cutting out a section with deWecker's scissors may suffice.

INTERMITTENT EXOPHTHALMUS.

Intermittent exophthalmus is an exceedingly rare condition of which about 50 cases are on record. Its essential feature is a temporary protrusion of the eyeball, occurring either spontaneously or on stooping or other change of the position of the body, rarely voluntarily. On removal of the existing cause the globe sooner or later recedes to its former position. Stooping, compression of the jugular vein in the neck and violent exertion are the most frequent causes. Swelling of the lids and dilated veins in the conjunctiva frequently coexist. The amount of protrusion varies greatly; atrophy of the optic nerve follows occasionally. In many cases, varices in other parts of the body are mentioned, and most authors incline to the view that this condition is due to a varix of the orbital veins, which may date back to birth but which later in life, under various conditions causing a venous stasis, may develop. Our author by experiment on normal orbits and eyes has shown that a slight intermittent exophthalmus is caused by interference with the venous outflow anteriorly, and in his last publication he reports on another case, very carefully investigated, and concludes that a varix alone may not be enough to cause the exophthalmus unless there is some hindrance to venous outflow. Krauss found anatomically 5 varices in 40 orbits and concluded the varix of orbit is much more common than intermittent exophthalmus, indicating that another factor must be present in these cases.

TENSION IN EXTERNAL DISEASES.

Zur Nedden has observed a lowering of tension in certain cases of external disease of the eyes. In phlyctenular inflammation, when numerous phlyctenules are situated on the limbus corneae a lowering is occasionally found even when the cornea itself is not involved. Sometimes the eye is so soft as to suggest a perforation, while at other times the only outward mark is a shallow anterior chamber. This low tension is of short duration, in from one-half to several hours normal tension being present again. Increase of tension has not been observed. The author has not found this condition in other conjunctival diseases, but he has found it in two cases of episcleritis where the diseased area was between the limbus and the equator without any corneal involvement. The lowering of tension seemed to occur for the most part when the congestion of the episcleritic nodules was greatest. In chronic cases with sclerosing keratitis and iritis this rapid temporary lowering of tension does not occur. A third group includes superficial injuries to the cornea which called forth marked subconjunctival injection without ulcer formation or iritis. In these corneal cases the lowering of tension is slight and best shown by the tonometer, though one case was marked enough to cause suspicion of perforation.

In these three groups of cases low tension is only occasionally found and then only for a short time at irregular intervals. In these cases we have an intense engorgement of the conjunctival superficial vessels which varies from time to time. Probably the sudden and extensive dilation of the episcleral and anterior ciliary vessels is accompanied by a collateral anemia in the vessels of the uvea which causes the

hypotonus, and naturally this is soon compensated so that the low tension is of short duration.

FATTY DEGENERATION OF CORNEA.

In consequence of certain inflammation in or about the cornea, a fatty degeneration in that tissue may take place as described by many authors, but except for Arcus senilis and marginal atrophy a primary fatty degeneration is almost unknown. Tertsch in 1911 published a case of primary fatty degeneration of both corneæ, and now Takayasn adds two more cases with microscopic report. The first case is that of a girl of sixteen with mild trachoma who showed gray-white punctate opacities of the cornea covering its whole extent except for a ring of much less intensity 1 m.m. broad at the limbus. The opacities varied in shape from punctiform to rod shaped, and in places assumed a mesh or net-like arrangement. All the spots were opaque but some were deeper than others. With the Zeiss corneal microscope it could be seen that the spots reached a certain depth and were made up of finer spots or flecks and had brush-like edges. The cornea between the spots was not normally transparent. Fine, deep blood vessels were abundant. The surface of the cornea was perfectly smooth. The anterior chamber or iris could not be seen through the opacity. Both eyes were much the same. Microscopic examination of a piece of the cornea was made and in brief a condition of marked fatty degeneration of the cornea was found, resembling that in the Arcus senilis but extending over the cornea. The second case also had had trachoma but showed no irritation. The whole cornea, but especially the pupillary area, was occupied by a spotty opacity like that in the first case, and microscopic investigation showed a similar picture. Tertsch's case did not have trachoma but presented a picture very similar to these, and the microscopic examination differed only in minor details. Both Tertsch and the present author consider these cases primary fatty degeneration of the cornea for these reasons: its slow, progressive, non-inflammatory course; the flattening of Bowman's membrane; the disintegration of the lamellæ of the cornea, which breaks down into fat drops. Also there is found neither small celled infiltration nor scar tissue.

A meeting of representatives of the various societies and missionary boards supporting educational and other institutions in the Turkish Empire was held at the National Arts Club, New York City, on Nov. 13, to arrange for the immediate raising of funds for the American Red Cross Society. Mr. Dodge gave $5,000 of this personally, and among the other contributors were Mrs. John S. Kennedy ($3,000), and Miss Helen Gould ($2,000).

Reports of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

THIRTY-SEVENTH ANNUAL MEETING HELD AT BALTIMORE, MARYLAND, MAY 28, 29 AND 30, 1912.

THE PRESIDENT, DR. HOWARD A. KELLEY, OF BALTIMORE, IN THE CHAIR.

(*Concluded from page 737.*)

PRESIDENT'S ADDRESS: HISTORY OF VESICO-VAGINAL FISTULA.

DR. HOWARD A. KELLY, of Baltimore, pointed out that the ancients confused all forms of inability to retain the urine under the common heading of "incontinence." He said that Felix Plater in 1597 discussed the condition with the utmost clearness, but had no remedy ready to propose. The first great light upon the subject was found in the work of von Roonhuyse in 1663, describing a method of posture, exposure, denudation, and closure by means of a quilts suture.

After paying his respects to Sims and Emmet, the speaker went on to discuss the newer dissection and flap-splitting methods of treatment other than those of direct denudation of the margins of the fistula, dwelling particularly upon the work of Hayward, Pancoast, Colles, Blasius, Mackenrodt, Walcher, and their followers.

SYMPOSIUM ON THE RADICAL ABDOMINAL OPERATION FOR CANCER OF THE CERVIX UTERI; PRIMARY RESULTS AND END RESULTS (FIVE YEAR LIMIT).

DR. JOHN G. CLARK, of Philadelphia, spoke on the radical abdominal operation for cancer of the cervix uteri, based upon forty operations.

DR. REUBEN PETERSON, of Ann Arbor, Michigan, spoke of the primary and end results of fifty radical abdominal operations for cancer of the uterus. There were ten deaths in the fifty-one cases, or a primary mortality of 19.6 per cent. His operative experience with the radical abdominal operation began some ten years ago, and until he had acquired some familiarity with the technic the results were very discouraging. This was shown by a primary mortality of 42.8 per cent. in the first 14 cases. In the last 37 cases there were but four primary deaths, a mortality of 10.8 per cent. In forty cases of carcinoma of the cervix there were nine deaths or a primary mortality of 22.5 per cent., while there was only one primary death in 11 cases of cancer of the fundus, or a mortality of nine per cent.

He had made a summary of the 51 cases which showed that eight patients with carcinoma of the cervix had died from recurrence of the disease, while one died of tuberculosis. Two patients with carcinoma of the cervix had had recurrences, but were still living. One patient had a recurrence in the vaginal vault five months after the operation. Indurated tissue about the size of the end of the thumb was removed at a second laparotomy. From personal examinations of seven patients out of the 11 with recurrences, he was able to say that in these the disease undoubtedly returned in the vaginal

cicatrix. There were ten recurrences among the 31 cases of carcinoma of the cervix surviving the operation, while there was only one recurrence in the 11 cases of carcinoma of the fundus.

THE RADICAL ABDOMINAL OPERATION FOR CARCINOMA OF THE CERVIX, WITH A REPORT OF 28 CASES.

DR. HOWARD C. TAYLOR, of New York City, drew the following conclusions: 1. The primary mortality of the radical abdominal operation was not such that it should deter us from doing the operation. 2. The percentage of operability of the cases that came under the observation of an operator would be greatly increased by means of this operation over the simple hysterectomy as formerly done. 3. The end results would never compare favorably with the end results reported from abroad until we were able to get our cases at an earlier stage of the disease, and that our justification for doing a radical operation was its moderate mortality and the relief of symptoms in a disease otherwise hopeless. 4. That our most promising field of endeavor on the subject of carcinoma of the uterus should be: 1. More reliable and complete statistics on operability, the community operability, primary mortality, and end results. 2. A well regulated organized plan of campaign in order to get the cases earlier than we do at the present time. This, by furthering the education of the medical profession, and the public at large and by the routine examination of all women after a certain age.

THE PROGNOSIS IN RADICAL ABDOMINAL OPERATIONS FOR UTERINE CANCER.

DR. FRED J. TAUSSIG, of St. Louis, said the radical abdominal operation for cervical cancer was not in itself a dangerous procedure. It became dangerous only in advanced cases, owing to the attendant complications, septic infiltration, injury to the bladder or ureter, bleeding, and prolonged narcosis.

The percentage of recurrences was distinctly less after this operation than after simple vaginal hysterectomy. It should be employed in every case of cervical cancer in which there was no special contraindication to a more extensive operative procedure. In far advanced cases the immediate operative risk was so great and the likelihood of recurrence such that these patients had better be classed as inoperable. Out of 15 patients in his group not a single one was alive today. Only by improving the training of the average practitioner, by the extermination of quacks and most of all by the persistent systematic education of the laity could we ever hope for better results.

REMOTE RESULTS IN ABDOMINAL HYSTERECTOMIES FOR CANCER OF THE UTERUS.

DR. THOMAS S. CULLEN, of Baltimore, said he had performed in all over 50 Wertheim operations. The more recent ones he did not refer to in his tabulation. He reported the result in 48 cases. Immediate deaths, 11 cases; remote deaths at periods varying from a few months to five years, 20 cases; patients lost track of, 5 cases; patients living and well at periods varying from one to thirteen years, 12 cases.

Twenty-five of Dr. Cullen's cases had been operated upon over five years with the following results: the mortality in the first 25 cases was 7, or 28 per cent.; in the succeeding 23 cases, 4, or 18 per cent. With the early detection of cancer the mortality would naturally be lower. Immediate death, 7 cases; not located, one case; remote death at periods varying from a few months to five years, 11 cases; living and well, 6 cases or 24 per cent.

In 24 per cent. of Dr. Cullen's cases operated upon over 5 years the patients were living and well.

DISCUSSION.

DR. JOHN A. SAMPSON, of Albany, in speaking of the end results (five year limit), stated that eight of the 25 patients of his were operated upon over five years ago. Two of these died as the result of the operation, and two died later from recurrence. Four were clinically free from cancer at the present time; that is, four of eight cases operated upon and of six surviving the operation. He briefly reviewed the six cases surviving the operation.

He had had the opportunity to obtain autopsies on five patients dying from recurrence. In three the immediate cause of death arose from the compression of the ureters by cancer extending from metastases in accessible iliac lymph nodes. In the fourth there was an extensive local recurrence in the field of operation from cancer not removed at operation. In the fifth there was an extensive local recurrence filling the pelvis and metastases to the lungs, heart, one kidney and skin.

DR. J. WESLEY BOVEE, of Washington, D. C., stated that his statistics of the employment of broad radical excision for cancer of the cervix down to three years ago were as follows: Number of cases operated upon, 36; mortality of operation was as follows: shock, 5; peritonitis, 2; fecal fistula, asthenia, fourteenth day, 1; renal insufficiency, 1; total 9 cases.

Died from recurrence of cancer at the end of one year, 1; at the end of 18 months, 1; at the end of 21 months, 1; at the end of two years, 2; at the end of three years, 1. Total 6.

Died from other diseases, of uremia after ureterocystotomy at the time of operation (lived 11 years), 1; unknown intercurrent disease (lived two years), 1; of tuberculosis (lived six months), 1. Total 3. Number living for more than three years without recurrence, 8; total after recovery from operation and not traceable, 10.

It would appear that 27 patients (75 per cent.) recovered from operation, and that of these 8, or practically 30 per cent. had remained well for more than three years.

DR. JOSEPH BRETTAUER, of New York City, stated that he did his first Wertheim operation in September, 1902, and this patient lived until 1905. Every one of the 19 other cases had not passed that limit. Three were alive not more than two and a half years. The rest all died between two and three years after operation. They were all more or less advanced cases. The ureter was resected once; the bladder was resected partially once, but so far as he could learn from reading their histories over, there were no special surgical difficulties. He mentioned one case which was still alive and apparently very well. He saw her only a week ago.

DR. LEROY BROUN, of New York City, said that the lesson we were to learn from these papers and the discussions was that gynecologists were not getting their cancer cases early enough. The percentage of operability was not as high as in foreign clinics. The percentage of immunity after five years

was not as high as in foreign clinics, and the key to the situation was that operators did not get these patients early enough, and it was necessary to educate the laity in various communities.

Personally, he had six cases to report, with one death. This patient died after a prolonged operation of some two hours and a half, and those who were alive were not to be included in the five year limit.

Dr. John O. Polak, of Brooklyn, New York, said he had been following the radical operation for about ten years, and that as far as any statistics he could get out of his patients were concerned, he had not a single patient living on whom the radical operation was done. Against this he had four patients alive who were operated on by the Byrne method, one having been operated on nearly 19 years ago, and one (the shortest period) having been operated on eight years ago. These were all cases that he considered practically inoperable by any radical procedure, and that was the reason he adopted the method of Dr. Byrne.

Dr. Seth C. Gordon, of Portland, Maine, said that the extremely advanced cases of cancer, no matter what was done for them, would die. If they did not die primarily, they died very soon afterwards. The only hope lay in education of the laity and early removal of the disease. There was no question in his mind that the surgeon could cure cancer of the uterus the same as he could cure cancer of the lip, but it must be seen and operated on early.

Dr. I. S. Stone, of Washington, D. C., believed that his patients lived many years longer after a radical operation than they otherwise would, and consequently he was encouraged to do radical operations. At the same time, he was not unmindful of the fact that the cautery method of Byrne in the delayed cases was far more desirable than any other method and yielded better results.

Dr. William P. Graves, of Boston, had done the Wertheim operation for cancer of the cervix in eighteen cases, and this covered a period of a little over three years. Of his eighteen cases he had been able to follow all of them. Of the living patients he had seen all of them within four months. He had a primary mortality of 2 or 11 per cent.

Dr. Hugo Ehrenfest, of St. Louis, called attention to what he considered a fallacy in comparing the results of operations as they were found in the reports of German clinics with the results obtained in America. Early diagnosis was the crucial point, and education of the public was the one factor which led to early diagnosis. Illiteracy was more prevalent in European countries than in America, and to feel that early diagnosis was entirely dependent upon the education of the public was wrong. It was not so much the education of the public as it was the well advertised name of a clinic.

Dr. E. E. Montgomery, of Philadelphia, stated that his experience in the treatment of cancer was that we had very much yet to learn from the pathologist and as to the best method of its treatment. He had seen patients in whom the conditions was such that he had little hope of their recovery, and yet he had operated on them, doing either the vaginal or abdominal operations as the conditions of the patients seemed to make most desirbale, and had found that these patients lived for a number of years; some of them were still living after more than ten years without any recurrence of the disease. He had seen other cases in which the disease occupied either the body of the uterus or the vaginal portion of the cervix, and in which his experience would lead him to say that here was a case in which one might hope for a radical cure, and yet within a few months afterwards there would be a recurrence of the disease and death of the patient.

Dr. Charles M. Green, of Boston, spoke of one case which had a lesson, in that the operation was a success for sixteen years, with no evidence of any recurrence about the pelvis. The patient then had general abdominal carcinosis.

Dr. Sidney A. Chalfant, of Pittsburg, said it was not the custom of Dr. Simpson to do the radical Wertheim operation. Of the cases embracing the five years limit, they had had thirty cases admitted. Of these only nine were suitable for the radical operation. Of these nine three died as a result of the operation; one died later of pneumonia at the end of one year; one died five years after operation of recurrence; and one died five and a half years after operation. Of the nine cases, there were three living and well at the end of three years. Of the thirty cases, four were considered inoperable, so far as radical operation was concerned. These four had had amputation of the cervix with the cautery. Of these four, one was living and well at the end of seven years; another one was living and well at the end of six years.

Dr. George H. Noble, of Atlanta, Georgia, gave the results of the work he had been doing. Of the cases operated upon over five years ago for carcinoma of the cervix there were 38; of these, there were 13 living. He was unable to trace six of the cases.

SYMPOSIUM ON THE END RESULTS (TWO YEAR LIMIT) OF OPERATIONS FOR COMPLETE PROCIDENTIA OF THE UTERUS.

(a) *In Child-bearing Women.*
(b) *In Women after the Menopause.*

CONSIDERATION OF THE MODERN METHODS OF TREATMENT OF PROLAPSUS UTERI WITH THEIR ADVANTAGES AND DISADVANTAGES.

Dr. E. E. Montgomery, of Philadelphia, said that prolapse might be simple or complicated. No surgical procedure was applicable to every case. Certain principles must be kept in mind on which any operative procedure must be based. Their purpose should be to reduce the size of the heavy organ, replace support, and antagonize or deflect intra-abdominal pressure by correction or fixation of the position of the uterus. The operative procedure may be vaginal, abdominal, or both combined. The uterus may be retained or extirpated. In all conditions requiring severe and complicated measures, its retention should be associated with sterilization. After the climacteric in marked prolapsus attended with edema and gravity sores, hysterectomy was preferable as a procedure. In the majority of cases the vaginal route was the most satisfactory. In all cases the rectovaginal interposition of the levator ani muscles was of the greatest value.

PROLAPSE OF THE UTERUS.

Dr. J. M. Baldy, of Philadelphia, said that plastic work alone would not cure a certain per cent. of cases. Consequently abdominal work of some kind was necessary in certain instances, but supple-

mentary plastic work was always necessary. The abdominal work could be better and more surely done if the uterus was sacrificed than if an effort was made to retain it. In the class of cases in which this operation was performed the woman was past the child-bearing period and no sentiments in regard to the uterus need be wasted.

He described the operation.

THE PRINCIPLE INVOLVED IN THE OPERATION FOR THE RELIEF OF PROCIDENTIA UTERI WITH RECTOCELE AND CYSTOCELE.

DR. J. RIDDLE GOFFE, of New York, said the true principle in normal support of the pelvic organs in women conformed to that of the other organs, namely by suspension from above. Any operation for the relief of prolapsus with rectocele or cystocele that ignored this principle was false in conception and in the long run was doomed to failure. The universal maxim in plastic surgery was to discover nature's plan and conform to it.

In child-bearing women the uterus was retained and restored to its normal position by the shortening of the uterosacral and the round ligaments. In cases of extreme procidentia, especially in women beyond the child-bearing period, the uterus was removed, but the deflected plane of tissue was maintained by stitching together the broad ligaments across the pelvis. The round ligaments were retained and still assisted in tilting this plane of tissue so as to deflect intra-abdominal pressure as before. It was diverted from its original direction where it would tend to force the contents of the pelvis out of the vagina. The other prominent feature of the operation was the restoration of the bladder to its normal position and function.

A series of 44 cases was presented in which the operation he described had been performed, the period of time elapsing since the operation extending from two to five years. On examination of all these cases it proved entirely satisfactory with one exception. Two cases had become pregnant and borne children at full term two years after operation.

PROCIDENTIA OF THE UTERUS TREATED BY PLICATION OF THE VAGINA AND CONJOINED SHORTENING OF THE UTEROSACRAL AND BROAD LIGAMENTS.

DR. WILLIAM M. POLK, of New York City, pointed out that the purpose of the operation was to remedy the defects without removal of the uterus, ovaries or tubes. Two patients became pregnant subsequently and carried their children to term. Eight cases retained all the benefits two years from the date of operation. The bladder was separated from the vagina as far as the urethra. The entire anterior vaginal wall was then folded in by suturing the sides of the vagina together with kangaroo tendon. The uterosacral and base line of the broad ligaments were conjointly shortened by a ligature which encircled above the uterine artery and within the ureter the lower half of the broad ligament and the uterosacral fold. One-half an inch from the uterus for the broad ligament, and an inch from the uterus for the sacral fold. The sutures, one for either side, were drawn forward and passed deeply into the tissue of the uterovaginal region and tied. Kangaroo tendon suture material was used for the plication and for this shortening. Additional sutures were used to fasten securely the tissues brought forward from the broad ligament and uterosacral fold to make more secure the anchorage. The fold produced by the plication at the anterior vaginal wall was now incised from below, turning back excessive tissue, it being trimmed off only where necessary, and the surfaces brought together by through and through sutures. In this way a strong supporting column was given to the base of the bladder, the whole being swung by taking up the slack in the lateral vaginal attachments, and by shortening of the broad ligament and uterosacral that had been mentioned above. The operator had carried out the procedure on 18 cases without any undue shock or hemorrhage, and with good recovery in each case.

DR. HIRAM N. VINEBERG, of New York, described the end results with various operative procedures for procidentia uteri and extensive cystocele prior and subsequent to the menopause.

OPERATIVE TREATMENT FOR SO-CALLED FUNCTIONAL DYSPEPSIA.

DR. WILLIAM H. WATHEN, of Louisville, said that every case of continued or inveterate dyspepsia or dyspepsia disappearing and recurring at regular intervals was antedated by a pathology in some part of the body, but in the large majority of cases the lesion would be found in some abdominal viscus as the appendix, the gall-bladder, the stomach, the duodenum, the large or small intestine, or the uterine adnexa. Dyspepsia caused by appendicitis or gallstones, with no stomach or duodenal adhesion, could be cured by the removal of the appendix, or by the removal of the stones and drainage of the gall-bladder and bile ducts. In gastric ulcer the lesion should be excised, or if this was not possible, it should be enfolded by linen sutures introduced deep enough to include the blood vessels around the ulcer. The excision of a gastric ulcer was important because of the fact that seventy-five per cent, of the cases of carcinoma of the stomach had their origin in a chronic ulcer. As carcinoma was seldom, if ever, primary in the duodenum, the excision of the ulcer was not often indicated, as in ulcer of the stomach.

OFFICERS.

The following officers were elected for the ensuing year: President, Dr. Henry C. Coe, New York City; Vice-presidents, Dr. George H. Noble, Atlanta, Ga., and Dr. George Gellhorn, St. Louis, Missouri; Secretary, Dr. Leroy Broun, New York City, and Treasurer, Dr. J. Wesley Bovee, Washington, D. C.

Washington, D. C., was selected as the place for holding the next annual meeting.

The recently published twenty-first report of the Board of Health on leprosy in New South Wales for the year 1911 shows that during this period seven persons were notified to the Board as suspected lepers, of whom three were certified as such and admitted to the lazaret. Two patients died of the disease. The report contains careful clinical and etiologic notes of the cases admitted during 1910, and a perspective survey of experimental leprosy by Dr. J. Ashburton Thompson.

Book Reviews.

Studies in Cancer and Allied Subjects. Vol. II. Pathology. Conducted under the George Crocker Special Research Fund at Columbia University. New York: The Columbia University Press. May, 1912.

This is an imposing quarto volume of 258 pages, printed on a very high grade paper, and bound in boards. It is illustrated by 31 half tone plates, a few of which are in colors. There are three other volumes in preparation of this series. Vol. I is to be a "General Report on the Present Status of Cancer Knowledge." Vol. III is entitled "Biology, Surgery, Biological Chemistry and Chemical Pathology." Vol. IV is entitled "Anatomy."

The contents of Vol. II consist of an introduction by Professor W. G. MacCallum, and a series of 26 papers by I. Levin, I. Levin and M. J. Sittenfield, R. A. Lambert, R. A. Lambert and F. M. Hanes, R. T. Frank, and R. T. Frank and A. Unger, published during the years 1910 and 1911. They are reprinted from the following journals: *Proceedings of the Society for Experimental Biology and Medicine, American Journal of Obstetrics and Diseases of Women and Children, Annals of Surgery, Journal of Experimental Medicine, Zeitschrift für Krebs forschung, Proceedings of the New York Pathological Society, Journal of Medical Research, Journal of the American Medical Association, Archives of Internal Medicine, and Surgery, Gynecology and Obstetrics.*

The papers by Levin, and Levin and Sittenfield, include four of a statistical nature, the most notable of which is one entitled, "Cancer Among the American Indians and Its Bearing on the Ethnological Distribution of the Disease," and nine papers on experimental work with rat and mouse tumors, bearing in general upon immunity problems. The latter papers are highly technical and several appear twice in the volume, having been reprinted both from preliminary publications and from final reports. A few are polemic in character, though masked by a small amount of experimentation. In general, these papers by Levin consist of problems selected from the field of cancer research and reduced by him to a series of experiments, the outcome of which must necessarily give an answer of "yes" or "no."

The papers by Lambert deal mostly with the cultivation of tumor tissues from rats and mice, and the application of this technique to immunity problems in cancer. Among Lambert's papers there are published five preliminary publications, which materially pad the volume, and which are included in another single paper entitled, "Characteristics and Growth of Sarcoma and Carcinoma in Vitro."

A paper by Frank and Unger on experimental study of the causes which produce the growth of the mammary gland, and one by Frank entitled, "The Function of the Ovary," are monographic in style. The first contains some careful experimental work, and conclusions which are important. The second is essentially a review of knowledge of the functions of the corpus luteum during pregnancy and lactation. It contains a few original observations by the author and is an interesting paper, designed for the general medical reader, as its earlier publication in "Surgery, Gynecology and Obstetrics" would indicate.

The volume contains a mixture of highly technical researches, unintelligible except to those who are familiar with the nomenclature of immunological and cancer research, and more or less popular papers of the type of Levin's statistical studies and the papers on the mammary gland and ovary, by Frank. The volume is greatly padded. Quarto size is achieved through having wide margins about printed matter which could be disposed of easily on the same number of octavo pages. The number of pages has been increased by the publication both of preliminary and completed reports of investigations. The same liberality is shown in the amount of plate paper used to make the thirty-one plates at the end of the volume.

The volume contains, on the whole, some very interesting material and creditable research. The title, however, is not justified by the substance of the volume.

One is forced to insist that, as an example of book-making, the volume is most extravagantly produced. The late re-publication of immunological cancer researches in this day of rapid progres in ideas and technic does not seem justifiable for any other purpose than that of forcibly calling attention to the fact that the work has been done. To any one aware of the pinched circumstances under which much good research has been done, and is being done, the expenditure of large sums for the re-publication of papers does not seem justifiable. It is often done by endowed institutions, such as the Crocker Fund, but rarely so extravagantly.

Aids to Ophthalmology. By N. Bishop Harman, M.A., M.B., etc. Fifth edition. William Wood and Company. 1912.

The fifth edition of this little manual is a revision of the fourth, with much additional matter. It is a concise and complete guide for the student beginning Ophthalmology. There are 100 illustrations. The author has packed a surprising amount of information into this small book, and we believe he is correct in stating "no point essential to the knowledge of the ordinary ophthalmic diseases and injuries has escaped notice."

Old Time Makers of Medicine. By JAMES J. WALSH, K.C.St.G., M.D., Ph.D., LL.D., Litt. D., Sc.D. New York: Fordham University Press. 1911.

This book, like all of Dr. Walsh's, is dedicated to the proposition that in medicine and surgery and the other sciences there is nothing new, which we deem peculiarly the property of our age, that was not paralleled or in large measure anticipated in medieval times. Like all his books, too, it is written with a personal and magnetic charm of style that delights even when it does not carry conviction.

The present volume is "the story of the students and teachers of the sciences related to medicine during the middle ages." It represents material "gathered partly for lectures on the history of medicine at Fordham University School of Medicine, and partly for articles on a number of subjects in the Catholic Encyclopedia." It is written "with the idea of showing that the medieval generations, as far as was possible in their conditions, not only preserved the old Greek medicine for us in spite of the most untoward circumstances, but also tried to do whatever they could for its development, and actually did much more than is usually thought." Its purpose "is to show at least the important headlands that lie along the stream of medical thought during the somewhat more than a thousand years from the fall of the Roman Empire under Augustulus (476) until the discovery of America." The history of the succeeding four centuries is promised in a subsequent volume, "Our Forefathers in Medicine."

If one were to select the best from the wealth of material which Dr. Walsh presents, one would choose perhaps the chapters on "The Medical School at Salerno," "Medieval Women Physicians," "Great Surgeons of the Medieval Universities," and "Guy de Chauliac." The weakness of his work, if any there be, is its tendency to assertion without argument, to persuasive iteration without proof. Yet after all, there are few great thinkers whose work does not consist essentially in the emphasis and expansion of a single idea; the only question is of the content and validity of that idea. In Dr. Walsh's case this is a question for each reader to decide.

Sexual Impotence. By VICTOR VECKI, M.D. Fourth edition. Enlarged. Philadelphia and London: W. B. Saunders Company. 1912.

The first German edition of this work was published in 1889. The first American edition, published in 1899, was reviewed in the issue of the JOURNAL for Dec. 14 of that year (Vol. exli, p. 607). The present fourth edition has been extensively revised and enlarged in the light of the great advances made in the science of urology during the past 20 years. In substance and purpose, however, it remains essentially the same as the original, and there seems no reason to modify our favorable opinion of it then expressed. It handles a disagreeable subject fearlessly and without offence. The spirit of its treatment, however, though entirely scientific, is subtly and at heart Teutonic, rather than English. It represents a materialistic attitude seen in fuller development in the author's later book on "The Prevention of Sexual Diseases," reviewed in the issue of the JOURNAL for April 27, 1911 (Vol. clxiv, p. 617). Even at the risk of being classed by the author among his contemned Puritan critics, one cannot refrain from adapting in application to his work the comment made by Hamlet under the impression of somewhat different circumstances:

"What is a man,
If the chief good and market of his time
Be but to sleep and feed? A beast, no more."

Report of the Commissioner of Education for the Year Ended June 30, 1911. Vol. I. Washington: Government Printing Office. 1912.

This first volume of the annual report of the Commissioner of Education presents in the usual elaborate form the work of the United States Bureau of Education for the past fiscal year. In the chapter dealing with current topics, particular attention may be directed to Sect. VII on Health and Hygiene. Here account is given of the organization of the American Association for the Conservation of Vision, of the work of the Public Health Education Committee of the American Medical Association, and of the fifth annual congress of the American School Hygiene Association, held in New York City in February, 1911. At this meeting, Mr. Irving Cooper delivered an address on "Schoolhouses and the Laws," in which Massachusetts is credited as being the only state in the Union that "has passed regulations on fire-retarding construction of schoolhouses." The volume is a valuable collection of data and discussion on all topics connected with the subject of general education.

Pathology of the Eye. By P. H. ADAMS, M.A., M.B.D.O. (Oxon.), Surgeon to Oxford Eye Hospital, etc. Oxford University Press. 1912.

This book, 7½ inches by 5 inches, 194 pages, makes no claim to originality but gives the methods of fixing, embedding and staining, which the author has found efficient, followed by a special pathology of each of the chief structures of the eye. The work is well done, and will have its usefulness for those who do not read the larger pathologies of the eye.

St. Luke's Hospital Medical and Surgical Reports. Vol. III. Brooklyn, N. Y.: William G. Hewitt. 1911.

This volume consists of the surgical and medical service statistics of St. Luke's Hospital for the year 1911, with a series of brief, well-illustrated papers on various clinical topics.

THE BOSTON
Medical and Surgical Journal

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THE CENTENNIAL OF MEDICAL JOURNALISM IN NEW ENGLAND.

THOUGH the BOSTON MEDICAL AND SURGICAL JOURNAL, in its present form, was not established as a weekly publication until 1828, it can fairly claim through the *New England Medical Journal*, the quarterly predecessor with which it was united, a continuous history of one hundred years. This centennial of its existence, therefore, seems to suggest and deserve commemoration by some comment on early medical journalism in Boston and New England.

The first number of the *New England Medical Journal* was published in January, 1812. The best account of its origin is given in the "Life of Dr. J. C. Warren."

"The establishment of a medical journal to open a vehicle for medical improvement, to form a repository for such observations as might be made, and with the design also to aid the Medical School, was first proposed by Dr. Warren. Dr. Jackson agreeing, they invited Drs. Gorham, Bigelow and Channing to unite with them. Each contributed papers from time to time and divided the labor of getting up the numbers. It was published quarterly. This work was very useful to the Medical School, inspired many physicians with a taste for observation, and was useful as a medical history of the times. Drs. Hayward, Ware, and Webster afterwards became connected with it and formed a club, which met every month to read and judge of articles, having a slight supper to aid them in their deliberations. The editorship finally passed into the hands of Drs. Ware and Channing. The subscription was small and the work hardly paid its way. It was continued, however, to the seventeenth volume and in 1828, it was on the point of dying out, when it was proposed to purchase a weekly medical journal which had recently been established, and unite the two."

"The demand for a weekly publication had already given rise, in 1823, to the *Medical Intelligencer*, conducted by Dr. J. V. C. Smith, and afterwards by Dr. Coffin, who was proprietor and editor from 1825 until 1828. The editors of the *New England Medical Journal*—consisting at that time of Drs. Channing and Ware only—purchased the work of Dr. Coffin for six hundred dollars (Dr. Warren taking two-thirds), and united the two journals. Dr. Warren commenced the editorship."

This description of the foundation and early struggles of the JOURNAL recalls editorial tribulations of later date, but is evidence, nevertheless, of the inherent vigor and vitality of medical journalism in Boston. Evidently the JOURNAL received the moral, if not the financial, support of the profession, as indicated by the following later paragraph from Dr. Warren's "Life."

"That this Journal was ably supported, and held a high rank, cannot be doubted. It was, however, not a profitable concern and, as the editors became more engrossed in medical practice, they had less leisure and inclination to manage it. 'After reaching the seventeenth volume,' says Dr. Warren, 'We got tired of it.' A journal of lighter form and more frequent appearance was thought better suited to the wants of the time. The London *Lancet* had given this form great popularity. The *New England Medical Journal* was continued until 1828 and then merged in the BOSTON MEDICAL AND SURGICAL JOURNAL."

Apparently, as in the case of most periodical publications, success or failure was in considerable part a question of the amount of time and energy devoted to the project by those concerned with its administration. A more intimate statement of this aspect of the early history of the JOURNAL occurs in a letter written about it by Dr. John Ware, one of the early editors.

"In 1824 the editorship of the *New England Journal* passed into the hands of Dr. Channing and myself. The subscription was small, and the work hardly paid its way. We thought of giving it up in 1827, but the plan was then suggested of uniting its list with the *Medical Intelligencer*, then conducted by Dr. John G. Coffin. Dr. John C. Warren united with us in purchasing that journal, and the BOSTON MEDICAL AND SURGICAL JOURNAL was begun under our joint charge. I forget how long we continued it, but we found it not only a laborious but a losing concern, and we disposed of the whole to Mr. Cotton. I could not at the time assume any pecuniary risk, and Dr. Warren accordingly took two-thirds of it, and, as an offset, I performed the greater part of his labor in getting up the number, *i.e.* of the mechanical part, which it fell to his share to edit. As the editors were

responsible for the expenses, the publisher was quite slack in getting subscriptions and collecting moneys due. It was, therefore, some years after we gave it up before our purchase-money was reimbursed. I believe that the outlay was chiefly repaid, probably something was lost."

Though something doubtless was lost pecuniarily, the continuity of medical journalism in New England was saved, and has been maintained to the present day. The subsequent history of the JOURNAL seems to have justified the confidence of its founders that it should serve a definite and worthy function in the community. That confident hope is still shared by those concerned in the administration of the JOURNAL today. And on this centennial anniversary, the JOURNAL stands, as the oldest representative of medical journalism in New England, and with one possible exception in America, with an auspicious future which should continue to embody the character and scientific progress of the New England profession.

SCHOOL DENTISTRY.

SCHOOL dentistry, even to the superficial observer, is clearly a subject of paramount importance. That dentistry should be introduced in the public schools is unanimously conceded. This introduction is one of the most vital of all hygienic steps suggested by the health authorities in our large cities. Many cities in the last few years have taken steps to meet this rising demand for oral cleanliness, but with one or two exceptions have limited their field to a partial examination of the children's mouths, from which have been compiled statistics which indicate the prevalence of caries. Much time has been spent in this examination. The time has now come when stringent methods should be adopted to eradicate this disease.

Boston has taken a noteworthy step toward attempting a practical method of caring for the teeth of its public school children. This is commendable work and should be encouraged to the utmost. In the report of the Director of School Hygiene, however, which deals with the methods for the care of the children's teeth in the public schools, are a few suggestions that seem liable to be misleading.

Paragraph II, on medical treatment, deals with the method of sending dental blanks to parents to be signed and also classifies children.

A. Children having no defects.

B. Children with defects, whose parents agree to personal care at their own expense through their own dentist.

C. Children who have no family dentist but are willing to pay nominal sums charged by hospitals, parents assuming responsibility.

D. Children whose parents are poor and are willing to have their children go to a hospital and cannot pay.

E. Children whose parents will not allow them to go to a hospital and will not care for them themselves.

These methods all lead up to the one system of having the Dental Infirmaries meet the oral demands of the school children of Boston. Is this plan, Dental Infirmaries vs. Public School Children, which to all outward semblances appears most practical, practical in entirety?

An interview with teachers of the elementary grades in the Boston schools shows that from classes of 45 pupils or more who were given dental blanks, before the end of the school year an average of 14 pupils returned cards with parents' signatures and 80% of these were signed for work to be done at Free Dispensaries. This leaves over 70% of pupils' parents not heard from. If this is a criterion of future benefits to be derived from the card system it would appear that another method is required. It may be that the only solution of the question is compulsory dental work, similar to compulsory medical treatment. There are two methods of obtaining compulsory dental work: (1) compelling, not suggesting, that the children go to free dental dispensaries; (2) the establishment of infirmaries in the school buildings, work to be done by volunteer dentists for nominal fees. Let us consider these two methods:

There are, including the clinics of Harvard and Tufts Dental Schools, 151 chairs in active use, of which 135 are used by students giving up their time to the practice of hospital dentistry. These students must treat the conditions in the mouths of 100,000 children. The schools feel their helplessness. A letter from the Dean of one of these dental schools says: "In the past we have really had too many children to attend to, and with the arrangement that we have made with the city authorities, I am afraid we shall have more than we can properly attend to. We need more adult patients." The only conclusion to be drawn from this letter is that the dispensaries are not adequate to meet the necessary demands. One of the school nurses is quoted as saying that she did not take the children to

Harvard or Tufts College because, owing to the crowds, mostly adults, she would have to wait sometimes three or four hours before a small fraction of her patients could be attended to. Therefore she has resorted to the smaller infirmaries, where she received quicker attention. In these smaller infirmaries there are only 16 chairs in all, of which there are possibly 4 that are not busy handling adult patients. Therefore we have 4 chairs to handle the new influx of patients that the card system is expected to incite to better care of the teeth. This method of compulsory dentistry to be done at infirmaries, therefore, may be eliminated. We now have Method 2, which seems a more feasible plan of handling the dental conditions of the public school children.

The monetary advantages of Method 2 over Method 1 are demonstrated best by the following comparison:

There are in the elementary schools of Boston 88,265 children. Although the statistics compiled by our school physicians give 66% with defective teeth, in Cleveland and other cities where dentists have made examinations 95% is given as nearer correct. It seems fair to state that 66% is much too low and that about 95% would be nearer the truth; 95% of 88,265 is 83,852 children with defective teeth. The cost to the parents for car fare to and from infirmaries 83,852 x .10 is $8,385.20. The cost to parents for material used ($.25 per filling), $20,938.10. Adding for second visit $.10 car fare for cleaning, we have $8,385.20 more. The total cost to parents under Method 1 for one cleaning and one filling would be $37,733.40.

The number of hours lost from school work in going to and from Dental Infirmaries and time spent there is about three hours per child. Therefore 83,852 x 3 is 251,556 hours the city would lose in having each child have one filling, and if one cleaning is added to this, 83,852 x 3 is 251,556 hours, we have 503,112 hours. The cost to the City of Boston to educate a child is approximately $.03 an hour. Therefore, 503,112 hours x 3 is $15,193.36 the city would lose in time spent away from school. It is not to be forgotten that one filling and one cleaning are far from expressing the average condition of each child's mouth. Seven to ten fillings would be a closer average, but even these figures indicate the undesirability of the present method.

Under Method 2, establishment of Infirmaries in the schoolhouse, with the work to be done by local dentists of the district, parents are to be charged $.10 a filling, to defray expenses of these infirmaries. We have the cost to parents (fillings $.10), 83,852 x 10 is $8,385.20. We eliminate one car fare and cost of material under Method 1 ($.25 a filling) and save parents $29,348.20.

A skilled dentist can handle an average of 4 patients an hour in hospital work, therefore in three hours he can handle 12 patients. Under Method 2 it takes 1-12 of the time it does under Method 1, 1-12 x 503,112 is 41,926 hours, the amount of time it would take to do the work at $.03 per hour, $41,926 x 3 is $1,257.78.

Savings to city in time, $15,093.36—$1,257.78 is $13,835.58. Saving to parents, $37,733.40 — $8,385.20 is $29,348.20. Savings to parents and city, $43,183.58.

An appropriation of $10,000 would establish 50 infirmaries and it would appear from the above data that the city would be repaid in a very short time for such an expenditure.

Aside from these facts, the closer co-operation of the dentist with the children under Method 2 will aid not only in giving immediate relief to the hundreds of children suffering from odontalgia, but should prevent the neglect of many thousands who would inevitably be neglected under Method 1.

TUBERCULOSIS AND THE SCHOOLS.

WHILE the personality of Dr. Arthur T. Cabot is fresh in memory it is fitting to call attention to an important article by him which appeared in the November number of the *Atlantic Monthly*. The title is "Tuberculosis and the Schools."

Dr. Cabot's views on tuberculosis command thoughtful consideration, not only because of the distinguished public service performed by him in this field and because of the honored place accorded him among men by reason of his attainments and high character, but, in this instance, chiefly because he expresses his mature judgment as to the best method of dealing with problems vital to the public welfare, namely, the protection from tuberculosis of healthy children in the public schools, the management of debilitated children, and finally, the treatment of children suffering from frank tuberculosis.

We hope, therefore, that many physicians will read the above-mentioned article by Dr. Cabot, which we take this occasion to commend to the attention of the profession.

MEDICAL NOTES.

A NORWEGIAN DENTAL CLINIC.—It is reported that a dental clinic of two rooms has been recently established at Stavanger, Norway, for the benefit of public school children in that city.

DOMINION MEDICAL COUNCIL.—On Nov. 17, a meeting of physicians was held at Ottawa, Canada, for the purpose of organizing a Dominion Medical Council, as provided for in the new medical act. Delegates to the meeting were sent by the several provincial councils and universities. The intention is, by having a central medical council of uniform registration, to make it possible for Canadian physicians to practice their profession in any province.

ITEMS FROM THE SURGEON-GENERAL'S REPORT.—The recently published annual report of the surgeon-general of the United States Army indicates that colored troops have a lower non-effective rate than white troops.

"The non-effective rate of the colored soldier was 25.88, while that of the white soldier was 33.60; the Porto Rican, 29.78, and the Filipino, 18.86. The report likewise shows that the white troops required the highest average number of days' treatment for each case of disability.

"However, the constantly non-effective rate, which is the true measure of the loss in efficiency of the army from sickness and injury, was 33.28 per 1000, the lowest non-effective rate in the history of the army. The deaths from all causes were 348, of which 194 were from disease. The total death-rate and that from disease are both the lowest on record, except for 1910.

"The admission rate for alcoholism in the United States for the year 1911 was 20.31, a material improvement over the preceding year, when it was 23.51. This rate has shown a steady diminution since 1907, following an equally steady rise for eight years before 1907. Fort Washington, on the Potomac, has the highest hospital admission rate of any army post in the United States. The rate in 1911 was 333.33 per 1000, as compared with 237.29 for 1910, 215.77 for 1909, 144.30 for 1908, 363.64 for 1907, and 736 for 1906. Washington barracks, D.C., is second to Fort Washington, with an admission rate of 185.41 per 1000.

"The death-rate in the United States army was 4.72, as compared with the Russian 4.07, French 3.75, Spanish 3.71, Japanese 3.57, Austro-Hungarian 2.84, British 2.42, Bavarian 2.26 and Prussian 1.78.

"The Surgeon-General also submits an estimate of $350,000 for the construction of buildings for the use of the army medical school now occupying a rented building on 12th Street, between G and H Streets. As the school is one of the permanent institutions of the service it would be much more economical as well as more fitting and convenient for it to be housed in structures erected by the government. It is proposed to locate the buildings near Brightwood that the students may have the clinical advantages and the instruction in administration afforded by the hospital there and also that the hospital may enjoy the laboratory conveniences of the school."

SANITARY SCIENCE AT TULANE UNIVERSITY.—Three series of courses in Sanitary Science were started at Tulane this session. These courses are for medical, science and engineering students specializing in sanitation. The medical graduate in this course expects to become the Health Officer on Boards of Health, the science graduate becomes the expert on sanitary biology, and the engineering graduate will eventually design, build and care for structures for sanitary purposes.

In the senior class of the sanitary engineering course instruction will be given in water supply, framed structures and re-inforced concrete construction by Professor Donald Derickson, recently professor in postgraduate courses in re-inforced concrete at Cornell University. Instruction and laboratory work in sanitary microbiology will be given by Professor Creighton Wellman and his assistants in the School of Tropical Medicine.

LADY PRIESTLEY LECTURE.—On Friday of this week, Nov. 29, Dr. Elie Metchnikoff, of the Pasteur Institute, Paris, will deliver the Lady Priestley lecture on "The Warfare Against Tubercle," before the Royal Society of Medicine, in London.

ILLNESS OF THE RUSSIAN CZAREVITCH.—In the issue of the JOURNAL for Nov. 14, we commented on the recent illness of the Russian Czarevitch. Report from London on Nov. 21 states that the imperial prince has tuberculosis of the hip, and that Dr. Israels of Berlin has been summoned to attend him at Tsarskoe-Selo.

BOSTON AND NEW ENGLAND.

ADDRESS BY DR. WILEY.—On Saturday evening of last week, Nov. 23, at Tremont Temple, Dr. Harvey W. Wiley delivered an address before the Boston Teachers' Club on "The Public Health, Our Greatest National Asset."

Medical Bequests of the Late Dr. Cabot.—The will of the late Dr. Arthur Tracy Cabot, of Boston, which was filed on Nov. 10 in the Norfolk registry of probate at Dedham, Mass., contains bequests of $20,000 to the Massachusetts General Hospital, and $20,000 to the town of Canton, Mass., for the procuring or maintenance of a hospital there. It also provides that the income of $50,000 from a fund of $100,000 given to the president and fellows of Harvard College shall be used for the general purposes of the Harvard Medical School.

Cambridge Anti-Tuberculosis Association. The annual meeting of the Cambridge (Mass.) Anti-Tuberculosis Association was held in that city recently. An address on "The Policy of the State as to the Care of Advanced Cases of Tuberculosis" was made by Mr. Arthur Drinkwater, of the Massachusetts State Board of Trustees of Hospitals for Consumptives, who paid especial tribute to the memory of the late Dr. Arthur Tracy Cabot, formerly president of the board.

A Leper at New Bedford.—Report from New Bedford, Mass., on Nov. 10 states that a case of leprosy has been discovered in that city in the person of a native of the Cape Verde Islands. The patient has been detained at quarantine pending his removal to the leper colony at Penikese.

End of Smallpox Epidemic at Barre.—Report from Barre, Vt., on Nov. 12 states that the epidemic of smallpox, which prevailed in that city during the month of October, is now at an end, and the local public schools have been reopened.

Surgical Appointments at the Boston Dispensary.—At a monthly meeting of the board of managers of the Boston Dispensary recently, the surgical department was reorganized. Dr. Frederic M. Briggs was appointed consulting surgeon; Drs. Benjamin Tenney and John Homans, surgeons-in-chief; Drs. Robert H. Vose, Theodore C. Beebe, Henry M. Chase and Henry D. Lloyd, assistant surgeons; and Drs. Frank L. Richardson and Hilbert F. Day, assistants to surgeons. The genito-urinary department will be in charge of Drs. Paul Thorndike and Arthur L. Chute.

Projected Tuberculosis Hospital at Pittsfield.—It is reported that a sufficient fund has been raised in Pittsfield, Mass., to purchase a site of land and erect thereon a $15,000 building to serve as a local tuberculosis hospital.

Recent Hospital Bequests.—The will of the late Mrs. Osgood Bradley, who died recently at Springfield, Mass., was filed in probate in that city on Nov. 8. It contains charitable bequests to the amount of $10,000 to various public institutions, among them the Baldwinville Children's Hospital of Templeton, Mass.

The will of the late Mary E. Burr, of Haverhill, Mass., which was filed last week in the Essex county probate court, contains bequests of $300 to the Hale Hospital, Haverhill, and $500 to the Haverhill City Hospital.

Honor for Dr. Berry.—It is announced that the new Mikado of Japan has conferred the Imperial Order of the Sacred Treasure of the Third Class upon Dr. John C. H. Berry, of Worcester, Mass., who, as a medical missionary, established the first modern Japanese hospital at Kioto, and made other "signal contributions towards the improvement of medical and sanitary organizations" in Japan.

A Centenarian.—Cephas Clesson Severance, of Leyden, Franklin County, Mass., died on Nov. 10, 1912, in the house in which he is said to have been born on April 23, 1812. He was twice married and is survived by two sons.

Four Living Centenarians.—Mrs. Roxana Urquhart, of South Weymouth, Mass., is said to have been born on Nov. 11, 1812. She has been the mother of 14 children, of whom 9 are still living at advanced ages.

Mrs. Elvira Gannett, of North Scituate, Mass., is said to have been born on Nov. 13, 1811. She is the last survivor of a family of 13 children, and is said to be still in excellent health.

Mrs. Louisa Waterman Carpenter, of Worcester, Mass., is said to have been born in 1806.

Charles Boileau, of Salem, Mass., who is said to have been born on Nov. 3, 1810, in Canada, celebrated recently his supposed one hundred and second anniversary. He is very deaf and has been confined to his bed for the past two years. He is the last survivor of a family of 15 children, and is himself the progenitor of 13 children, 29 grandchildren, 23 great-grandchildren, and 2 great-great-grandchildren.

Boston Mortality Statistics.—The total number of deaths reported to the Board of

Health for the week ending Saturday noon, Nov. 17, 1912, is 190, against 185 the corresponding week last year, showing an increase of 5 deaths, and making the death rate for the week 13.76. Of this number 110 were males and 80 were females; 184 were white and 6 colored; 121 were born in the United States; 68 in foreign countries and 1 unknown; 44 were of American parentage, 124 of foreign parentage, and 22 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 39 cases and 0 deaths; scarlatina, 19 cases and 0 deaths; typhoid fever, 8 cases and 0 deaths; measles, 89 cases and 0 deaths; tuberculosis, 73 cases and 17 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 18, whooping cough 0, heart disease 23, bronchitis 1. There were 16 deaths from violent causes. The number of children who died under one year was 29; the number under five years 44. The number of persons who died over sixty years of age was 57. The deaths in hospitals and public institutions were 83.

Deducting the deaths of non-residents the total is 164.

Cases of communicable diseases reported to the Boston Board of Health for the week ending Nov. 19, 1912, are: diphtheria, 31; scarlatina, 25; typhoid fever, 4; measles, 85: smallpox, 0; tuberculosis, 71.

The death rate of the reported deaths for the week was 13.69.

NEW YORK.

CLINICAL CONGRESS OF SURGEONS.—The Congress of Surgeons of North America, which came to a close on November 16, was a pronounced success in every way, though the attendance was so large that some inconvenience was experienced. The leading surgeons in America participated, as well as some of the most eminent from abroad. A notable feature of the work of the Congress was the adoption, at the close of a symposium on the treatment of cancer of the uterus at the Brooklyn Academy of Music, of the following resolutions:

"*Be it Resolved* That the time has arrived when, if the surgeons of America are to do their duty to the citizens of this country, a campaign of publicity should be at once undertaken to bring to the attention of every woman in this country the early symptoms of cancer of the womb and to point out that if the cancer be detected in its early stages it can often be cured.

"*Be it further Resolved,* That this society at once appoint a committee of five, to be named by the president, to disseminate this information.

"*And, further,* That this committee be instructed to write or have written articles to be published in the daily press, the weekly or monthly magazines, as may prove most expedient.

"*And, further,* That they report their progress for the year to the next annual meeting."

The following committee was appointed to act in accordance with the resolutions: Dr. Thomas S. Cullen, of Baltimore, chairman, and Drs. Howard C. Taylor, New York; C. J. Miller, New Orleans; F. F. Simpson, Pittsburgh; E. C. Dudley, Chicago. At a business meeting held on the 15th, Dr. Edward H. Martin, the general secretary, made a motion, which was seconded by Dr. John B. Murphy of Chicago, to the effect that the president be authorized to appoint a committee of nine to consider the advisability of establishing a special college of surgeons, similar to the Royal College of Surgeons of Great Britain, with power to grant a degree supplementary to that of medicine, which should be a fellowship in the proposed college. In advocating this, Dr. Martin said that the time had now come when the surgeons of the United States and Canada should take up the question of determining a minimum of educational and practical training for medical men morally and legally entitled to practice surgery. The motion having been carried, the following committee was appointed. Dr. Edward H. Martin of Philadelphia; Drs. Franklin H. Martin, Albert J. Oschner and John B. Murphy of Chicago; Dr. Rudolph Matas of New Orleans; Dr. W. W. Chipman of Montreal; Dr. J. M. T. Finney of Baltimore; Dr. F. J. Cotton of Boston; Dr. Emmett Rixford of San Francisco; Dr. George E. Brewer of New York (ex-officio). Dr. Martin stated that the fact that 2600 surgeons had attended this Congress showed that the organization was really too large, and that it would be necessary to devise some means to limit the membership to 2000. The following resolution, presented by Dr. Kanaval of Chicago, was then adopted: "Be it resolved by the Clinical Congress of Surgeons of North America here assembled, that some system of standardization of hos-

pital equipment and hospital work should be developed, to the end that those institutions having the highest ideals may have proper recognition before the profession, and that those of inferior equipment and standard should be stimulated to raise the standard of their work. In this way patients will receive the highest type of treatment, and the public will have some means of recognizing the institutions devoted to the highest ideals of medicine. The president of the Congress is hereby authorized to appoint a committee delegated to carry the spirit of this resolution into effect." The following committee was appointed: Drs. E. A. Codman, Boston; W. J. Mayo, Rochester, Minn.; A. B. Kanaval, Chicago; W. W. Chipman, Montreal. The following officers of the Congress were elected for the ensuing year: President, Dr. George E. Brewer, New York; vice-president, Dr. W. W. Chipman, Montreal; general secretary. Dr. Franklin H. Martin, Chicago; treasurer, Dr. Allen B. Kanshiel, Chicago; chairman of committee of arrangements, Dr. E. Willis Andrews, Chicago. Chicago was selected as the next place of meeting.

Jewish Consumptives' Relief Society.—The Jewish Consumptives' Relief Society, which has a membership of some 25,000, held its eighth annual meeting in New York on November 10, 11 and 12. At one of the sessions Dr. A. Jacobi made an address and an illustrated lecture was given by the secretary, Dr. C. D. Spivak.

St. John's Guild.—The 46th annual meeting of St. John's Guild was held on November 12. The report for the year showed that during the past summer 15,231 mothers, 13,727 sick infants and children, and 26,659 others under six years of age were carried on the trips of the floating hospital; more than ever before. At the Seaside Hospital, at New Dorp, Staten Island, 3329 patients were treated. The old buildings occupied by this hospital are being replaced by modern ones, and two new wards will be ready for use at the opening of the next season.

Hospital Bequests.—Among recent charitable bequests are the following: by the will of Mrs. Melinda Hasbrouck, $10,000 to the Stony Wold Tuberculosis Sanitarium in the Adirondacks; by the will of Francis McNeil Beacon, $7,200 to St. Luke's Hospital ,to endow a bed in memory of members of his family; by the will of Mrs. Elizabeth F. Noble, $5,000 each to the Society for the Relief of the Ruptured and Crippled and the Home for Incurables; by the will of Thomas F. Bardon, $1,000 each to St. Vincent's Hospital and the Consumptives' Home of St. Joseph, and $500 each to St. Rose's Cancer Hospital and the Hospital for the Blind, in the Bronx.

Harvey Lecture.—The fourth in the current series of Harvey Society Lectures was given at the New York Academy of Medicine on Saturday of last week, Nov. 23, at 8.30 p. m., by Professor G. N. Stewart, of Western Reserve University, on "The Rate of Blood-Flow and the Vasomotor Reflexes in Disease."

Memorial to Dr. Rosa.—A bronze tablet in memory of Dr. D. B. St. John Rosa has been recently unveiled at the Post-Graduate Medical School and Hospital, in New York, of which he was president from its foundation in 1881 until his death in 1908.

Mental Hygiene Exhibit.—In connection with the Mental Hygiene Conference, which was the subject of an editorial in last week's issue of the Journal, there was held in New York City, from Nov. 8 to 15, a mental hygiene exhibit, which will be subsequently shown in other cities of New York State, and in Boston, Baltimore and Chicago.

Alliance Between Cornell and the New York Hospital.—It is announced that as the result of a gift of $2,000,000 by Mr. George F. Baker, president of the First National Bank of New York, an alliance has been effected between Cornell University and the New York Hospital.

"This affiliation, which is directly in line with the best ideas of the day, is made possible by a $2,000,000 gift to the university by George F. Baker, the New York banker. Under the terms of the agreement Cornell acquires the use of one-half the entire hospital service for purposes of medical teaching and research, and receives a splendidly equipped laboratory for the more perfect study and investigation of disease. Mr. Baker, as one of the governors of the hospital, has long been deeply interested in promoting medical education and his gift is undoubtedly due first, to a realization that a university, to give the best possible medical teaching, must provide its students with opportunities to study disease at first hand, and second, to his appreciation of the fact that a hospital, if it is to render the fullest duty to the community, requires close

contact with those familiar with the theoretical side of medicine.

"The New York Hospital is one of the oldest institutions of the kind in the city, the Society of the New York Hospital deriving its charter by royal grant from George III., on June 13, 1771. Its roll of membership includes the names of many men of science who have contributed to the international fame of American medicine. The hospital has been looking for a new site for some years. Several have been considered, and it seems likely that one at Fifty-fourth Street and the Hudson River will be chosen.

"Cornell Medical College, which was established in New York City in 1898, is situated at Twenty-eighth Street and First Avenue. Its establishment was made possible through the gift of $4,000,000 as a maintenance fund by Oliver H. Payne. The consolidation of the college with the hospital is the second such consolidation in the city.

"The existing service in the New York Hospital is 350 beds. This will be increased to more than 600 beds when the new building is completed. The Cornel medical staff comprises 142 members, a large number of whom are employed exclusively in the work of scientific research. The total capital invested in Cornell medical study, including that invested in the Loomis Laboratory, in Twenty-sixth Street; the hospital, in Twenty-eighth Street; Stimson Hall, in Ithaca; the Huntington and other funds devoted to various forms of research work, reaches about $7,000,000."

This alliance is of importance as signalizing another step in establishing the desirable close co-operation between hospitals and schools in medical education.

POISONING BY OXALIC ACID.—In the case of the patient at the Yonkers Homeopathic Hospital and Maternity who was fatally poisoned by oxalic acid, given in mistake by her nurse for Epsom salt, the coroner's jury has rendered a verdict to the effect that the death was due to carelessness. "The nurse," it states, "is exonerated from all criminal intent, but not for the careless manner in which she handled this poisonous drug, as her teaching had been such as to cause her to examine the label before she gave the drug to the patient."

CONGRATULATION TO DR. CARREL.—The United State, through President Taft, the French Nation, through its Ambassador, and the City of New York, through President Mitchell of the Board of Aldermen, united in paying tribute to Dr. Alexis Carrel on the occasion of the formal presentation to him of the Nobel Prize in Medicine, recently awarded him. The presentation was made on Nov. 16, in the Great Hall of the College of the City of New York, by M. Jusserand, before an audience of 3,000, among whom were many prominent persons, with President Finley of the college presiding. In his speech of acknowledgment Dr. Carrel said that no man of science had ever received such impressive public recognition, and in presenting his congratulations President Taft said: "I am glad to be here, as the head of the nation, to testify to the debt we owe Dr. Carrel for the discoveries he has made. He takes his place by the side of Pasteur and other pioneers in research who have blessed the whole human race by their deeds. Dr. Carrel takes his place formally and officially among the great ones of the earth by the award of the Nobel Prize. He takes it actually and practically by the acknowledgment by the world that he has made possible benefits which before his discoveries were in the realm of the impossible."

DEATH UNDER STOVAINE.—A patient, fifty years old, died on the table at the Polyclinic Hospital on Nov. 15, just as Dr. William Seaman Bainbridge was about to operate for strangulated hernia. Anesthesia had been effected by the spinal injection of stovaine, but the autopsy showed that the man was in extremely bad physical condition, and Dr. Seaman has expressed the opinion that the death was not due to this drug. It may, perhaps, be recalled, however, that when Jonesco was demonstrating his method of stovaine spinal anesthesia three years ago at the Post-Graduate Hospital, in one or two of the cases it was with difficulty that the hospital succeeded in saving the patient from fatal syncope.

ECONOMIC RESTRICTION OF WATER FOR DOMESTIC BATHS.—Mayor Gaynor has written to Commissioner Thompson of the Department of Water Supply that he is opposed to the metering of water in dwelling houses and tenements, on the ground that it would be injurious to the health of the community. "Members of the family," he says in his letter, "would refrain from taking baths, for instance, for the sake of economy, or in fear of annoying the head of the house by adding to his expenses. I do not think that water should be restricted for household use. Every one in the family should feel free to take a bath at any time."

Current Literature.

Medical Record.

November 16, 1912.

1. Goffe, J. R. *An Operation for Extreme Cases of Procidentia, with Rectocele and Cystocele.*
2. Cornwall, E. E. *Some Practical Points in the Interpretation and Management of High Blood Pressure.*
3. Bryant, W. S. *The Modified Radical Mastoid Operation for the Cure of Otitis Media Purulenta Chronica.*
4. Kirkendall, J. S., and Fitch, C. P. *Parinaud's Conjunctivitis.*
5. Smith, H. E. *X-ray Therapy.*
6. Ogden, J. B. *The Significance of Some Urinary Constituents.*
7. Kahn, L. M. *Congenital Stricture of the Ureter, Producing Pyonephrosis.*
8. Lyle, H. H. M. *Poisoning by Scarlet Red.*
9. Stewart, D. H. *The Pregnant Woman, Tuberculosis, and Safety.*

New York Medical Journal.

November 16, 1912.

1. Fischer, L. *Infant Feeding.*
2. Wellman, C. *Salvarsan in Leprosy.*
3. Forbes, A. M., and Copeland, G. G. *Heliotherapy.*
4. Lewis, B. *The Removal of Ureteral Stone by Cystoscopic Methods.*
5. Lafora, G. R. *Angioma of the Pons.*
6. Bierhoff, F. *Venereal Diseases; a Sanitary and Social Problem.*
7. Eisenstaedt, J. S. *The Rational Therapy of Syphilis in the Light of Recent Investigations.*
8. Sittenfield, M. J. *New Methods of Diagnosis in Cancer.*
9. Lovell, F. S. *Deformities of the Nose.*

The Journal of the American Medical Association.

November 16, 1912.

1. Roberts, J. B. *Recent Advances in Plastic Surgery of the Bones.*
2. Hagens, G. J. *Obstetrics in General Practice.*
3. Vaughan, J. *Blood-Changes Caused by the Hypodermic Administration of the Cancer Proteid.*
4. *Pfahler, G. E. *Adhesions and Constrictions of the Bowel; Their Demonstration and Clinical Significance.*
5. Angell, E. B. *The Study of the Urine in Nervousness.*
6. Brush, A. C. *Convulsive Seizures Associated with Postmenstrual Gastro-Intestinal Disorders.*
7. Guiteras, J. *Three Cases of Bubonic Plague in Havana.*
8. *Beer, E. *The Treatment of Papillary Tumors of the Urinary Bladder with the High-Frequency Current (Oudin).*
9. *O'Neil, R. F. *Cancer of the Bladder.*
10. *Judd, E. S. *Results in the Treatment of Tumors of the Urinary Bladder.*
11. Rous, P., Murphy, J. B., and Tytler, W. H. *A Filterable Agent the Cause of a Second Chicken-Tumor, an Osteochondrosarcoma.*
12. Pottenger, J. E. *Macrophagocytes in the Sputum of a Patient with Chronic Hemoptysis.*
13. Macht, D. I. *Fatal Hemorrhage from a Small Branch of the Vena Saphena Parva.*

4. Pfahler states that localized peritonitis resulting in adhesions is a common condition, and while it must often be present without producing any symptoms it is a pathologic condition that should be considered in all obscure abdominal cases. Constrictions of the bowel may be permanent or temporary. The permanent ones are liable to be due to adhesions or carcinoma and may be demonstrated by x-ray. Temporary constrictions may or may not be present during an examination, but the condition which would give rise to such constrictions will be present and can be demonstrated. Colonic loops, particularly affecting the sigmoid, may produce repeated temporary symptoms and have been found associated with the group of periodical sick-headache cases.

8. Beer, analyzing the reports of 200 cases of benign papilloma of the bladder and urethra is enthusiastic over the intravesical method of treatment by high frequency electric current. He is sure, however, that no malignant growth will be cured in this way. It is, therefore, of prime importance to determine, at the onset, whether the tumor is benign or malignant, a thing which is often very difficult. All cases should receive immediate microscopic study and only benign cases subjected to this form of treatment, the results of which in benign cases are very satisfactory.

9. O'Neil's review of cancer of the bladder is very complete, concise, and brings the literature well to date. The operative mortality is low. The author urges strongly thorough investigation of symptomatic hematuria and early operation.

10. Judd also emphasizes the great importance of early diagnosis and operation and frequent postoperative examinations to discover the earliest signs of recurrence in bladder tumors. [E. H. R.]

Surgery, Gynecology and Obstetrics.

November, 1912.

1. *Mayo, W. J. *Nephrectomy without Drainage for Tuberculous Kidney.*
2. Frazier, C. H. *Intracranial Division of the Auditory Nerve for Persistent Aural Vertigo.*
3. *Neff, J. M. *Arthroplasty.*
4. *Dickson, F. D., and O'Neal, A. H. *Osteo-Arthritis of the Spine; with a Report of Three Cases Complicating Disease of the Abdominal Viscera.*
5. Frank, R. T. *An Experimental Study of the Placenta Under Physiological and Pathological Conditions (Ferments, "Vital" Staining.)*
6. *Gerster, A. G. *Unsuccessful Surgery in Disorders of the Gall-Ducts, Together with a Consideration of Naunyn's Cholangiolitis.*
7. Greensfelder, L. A., and Gatewood, L. C. *A Case of Pseudohermaphroditism.*
8. *Fuller, W. *Report on Exophthalmic Goiter Based on the Experience of the Members of the Chicago Surgical Society.*
9. Dick, G. F., and Curtis, A. H. *Concerning the Function of the Corpus Luteum and Some Allied Problems.*
10. Keenan, C. B. *Chorio-Epithelioma of the Testicle; with Report of a Case.*
11. Squier, J. B. *Technical Points in Prostatic Enucleation.*
12. Dickinson, R. L. *The X-ray in Gynecology; Review of the New Evidence.*
13. Babcock, W. W. *Spinal Anesthesia, with Report of Surgical Clinics.*
14. Wood, J. C. *Rhinophyma.*

1. Mayo now no longer drains nephrectomy wounds made in the removal of tuberculous kidneys, even when the wound has been soiled with tuberculous material, but fills the wound with salt solution and sews it up tight, thus avoiding the possibility of a mixed infection or slow healing sinus with their delaying effects on convalescence.

3. Neff's article on arthroplasty is extremely interesting and well presented. He gives a good expo-

sition of arthroplasty with indications and contra-indications in individual points.

4. Dickson and O'Neal point out that acute spinal disease and abdominal disease, particularly acute symptoms arising in the gastro-intestinal tract and urinary system, may often be confused. Relief of the ptosis or other abdominal conditions without relief of pain often points to osteo-arthritis of the spine. No examination is complete without the x-ray.

6. Gerster believes that every dilated common duct should be opened and drained. An inflamed, thickened, adherent or shrunken gall bladder should be removed. The presence of many small stones, even though the cystic duct be patulous, indicates that the gall bladder should be removed.

8. Fuller, reporting on exophthalmic goiter, finds that of all forms of medical treatment none shows such good results as complete rest enforced for long periods of time. Fully 85% of cases treated surgically are cured by operative treatment as regards thyrotoxicosis and secondary changes in other organs. Improvement from surgery is usually prompt. The Kocher operation is the one preferred. Drainage is universally recommended. Immediate mortality in 600 cases was not over 5%. The anesthesia is blamed for death in but very few cases. Acute exacerbations or operative hyperthyroidism are supposed to be the chief causes of death. Ligature of one or more arteries is a favorite procedure in mild cases.

[E. H. R.]

BRITISH MEDICAL JOURNAL.

OCTOBER 26, 1912.

1. GOODHART, S. *The Harvcian Oration on the Passing of Morbid Anatomy.*
2. *SAMBON, L. W., AND CHALMERS, A. J. *Pellagra in the British Islands.*
3. ALDERSON, G. G. *Mitral Stenosis: Peripheral Emboli, Causing Partial Monoplegia with Symptoms Simulating Cerebral Embolism.*
4. JACOB, F. H. *On the Presence of Sugar in the Cerebro-spinal Fluid from Cases of Meningitis.*

THE BRITISH MEDICAL ASSOCIATION.

SECTION OF GYNECOLOGY AND OBSTETRICS.

5. BRIGGS, H. *Introductory Remarks by the President.*
6. *GRIFFITH, W. S. A. *Discussion on the Results of Treatment of Inflammatory Disease of the Uterine Appendages.*
7. JOHNSTONE, R. W. *Chorio-angioma of the Placenta.*
8. SHANNON, D. *Notes on Rupture of the Uterus in Connection with a Case of Concealed Accidental Hemorrhage.*
9. *HEDLEY, J. P. *The Excretion of Creatin in Pregnancy and the Toxemias of Pregnancy.*
10. *BYERS, J. *Rashes Occurring During the Puerperium.*
11. FOTHERGILL, W. E. *A Note on Some Developmental Errors of Puberty.*

COMBINED SECTIONS OF PATHOLOGY AND GYNECOLOGY AND OBSTETRICS.

12. *BALLANTYNE, J. W., ET AL. *Discussion on the Etiology of Eclampsia.*

SECTION OF LARYNGOLOGY AND RHINOLOGY.

13. HAJEK, L. *Discussion on the Treatment of Chronic Suppurative Ethmoiditis.*

REPORTS TO THE SCIENCE COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION.

14. NICOLL, W. *The Anemia of Ankylostomiasis.*
15. NICOLL, W. *Flies and Other Insects as Carriers of Infection.*
16. BROOKS, R. St. J. *The Opsonic Index in Plague Vaccination.*
17. CLARK, A. J. *The Destruction of Alkaloids by Emulsions of the Body Tissues.*
18. COWELL, E. M. *Study of Experimental Purpura.*
19. *HEY GROVES, E. W. *Some Clinical and Experimental Observations on the Operative Treatment of Fractures, with Especial Reference to the Use of Intra-medullary Pegs.*
20. ORR, D., AND ROWS, R. G. *The Acute and Subacute Lesions Induced in the Spinal Cord by Infection of Its Lymph System.*

2. The writer believes that in all probability pellagra is more common in English lunatic asylums and elsewhere than is supposed. They report a few cases of undoubted pellagra which they had found in their investigations and urge that the medical profession be on the lookout for this very insidious and serious condition.

6. Griffith discusses the various nonoperative treatments of pelvic inflammation, thermal, radium treatment and the use of serums and vaccines. The latter, he believes, must always be subservient to surgical measures. He then takes up the subject from the surgical point of view, considering ovarian inflammation, acute and chronic, remote results of removal of both ovaries and the sequelae of operations on the various uterine appendages, such as scar herniae, fistulae and sinuses.

9. Hedley believes the toxemia of eclampsia to be totally different from the ordinary bacterial toxemias acting on the liver, which cause an increased secretion of creatin, while the toxemias of eclampsia acting on the liver suppress or diminish the excretion of creatin.

10. Byers describes the various rashes which may occur during the puerperium, such as scarlatina, generally very mild, urticaria, erysipelas and others.

12. In discussing the etiology of eclampsia, Ballantyne is of the opinion that it is due to a toxemia, with causes inside the uterus, leading to hepatic and renal insufficiency. Teacher describes the post-mortem changes; Smyly discusses treatment, phlebotomy, symptomatic treatment and compares the results with conservative, versus radical measures, by this meaning dilating and immediate delivery. His own treatment consists of (1) avoidance of all external irritation, (2) control of convulsions by morphine and chloral, (3) labor assisted but not forced, (4) watching and stimulating the vital processes.

19. Groves strongly recommends the method of operating on fractures by the use of intramedullary pegs. This method he describes in detail as well as various animal experiments on which his conclusions are based.

[J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 41. OCTOBER 8, 1912.

1. *CZERNY, V. *The Non-operative Treatment of Tumors.*
2. *SAENGER, A. *Nervous Diseases in Pregnancy.*
3. *RICHTER, G. *Bilateral Pneumogram in Diseases of the Lungs and Pleura.*
4. CLAUDIUS, M. *Colorimetric, Quantitative Estimation of Albumin.*
5. KONETZNY, G. E. *Pathology and Etiology of the So-called Telangiectatic Granuloma.*
6. BORCHERS, E. *Total Enucleation of the Tonsils.*
7. MÜLLER, O. *Surgical Treatment of Tropical Dysentery.*
8. LORAND, A. *The Question of the Origin of Headaches and Their Rational Treatment.*

9. Rupprecht, K. *Psychology of Youthful Delinquents.*
10. Köhler, A. *A Complete Set of Proximal Metacarpal Epiphyses.*
11. Sarason, D. *Fighting Tuberculosis by a New, Economical and Hygienic Form of House for the Masses.*
12. Beck. *Iodostarin, "Roche."*
13. Stern, K. *The Question of Infectivity of Warts.*
14. Schineller, C. *Experiences with "Joha."*
15. Dreyfus, G. L. *Occurrence, Avoidance and Treatment of Neuro-recurrence. (To be concluded.)*

1. Czerny reports encouraging results in the treatment of cancer by the combination of various methods, including x-ray, radium, mesothorium, thorium-x and borcholin. Pain has been relieved, nodules have disappeared, the general condition of the patient has been improved, comfort promoted and life prolonged by these means.

2. Finding little in the literature, and believing that the prognosis of psychosis in pregnancy is not so good as is generally supposed, the writer asks for more attention to this subject. He says that psychoses of many kinds may occur and he thinks that abortion should be practiced more often for relief.

3. The writer presents an interesting (but inconclusive) preliminary report of sphygmographic tracings of the movements of the chest in breathing.

[G. C. S.]

Deutsches Archiv für Klinische Medizin.

Band 107. Heft 5-6. September 30, 1912.

1. *Hürter, T. *Investigations on Human Arterial Blood.*
2. *Lang, G. *A Few Movements of the Breast Wall and Epigastrium Caused by the Heart's Activity.*
3. Obrastow, W. P. *Direct Percussion with One Finger. Isolated Percussion.*
4. Gross, O. *Investigation on Pancreas Diseases.*
5. Krow, H. *Essay on the Knowledge of Human Trichinelliasis.*
6. Joachim, G. *The Importance of Auricular Lever Pulsation.*
7. Hess, L., and Saxl, P. *Destruction of Hemaglobin.*

1. Hürter describes in detail his method of procuring blood by puncture of the radial artery. This he thinks can be done without permanent injury to the lumen of the vessel. The arterial blood thus obtained furnishes interesting material for study. As yet the cases are so few that physiological conditions have not been put on a certain basis. The method used has been to analyze the amount of oxygen in the blood. The pathological cases studied consisted in diseases of respiration and circulation and anemias. Although not claiming any results, he thinks that the field is fertile for further study.

2. Lang in this article has taken up the study of the pulsations of the chest wall and epigastrium in different types of cardiac conditions. His study has been by means of tracings and he finds certain signs characteristic of certain definitely established valvular diseases of the heart. Therefore he considers that this means of investigation is of value in making diagnosis of the type of cardiac disease, and also he finds it is of value in showing the exact amount of dilatation or hypertrophy in the heart. [C. F., Jr.]

Deutsche Zeitschrift für Chirurgie.

Band 117. Heft 3-4. July, 1912.

1. Walcker, F. *The Cutaneous Arteries of the Human Body.*
2. Vorschütz. *The Treatment of Severe Fractures of the Femur.*
3. Vorschütz. *Laceration and Fracture of the Lesser Trochanter.*
4. *Goetjes. *The Talma Operation.*
5. Luxembourg. *Gun-shot Wounds of the Pancreas.*
6. Riedel. *A Number of Complete Cures Following Radical Operation for Cancer of the Tongue, Either Recurrence or New Growth.*
7. Riedel. *The Present Condition of a Hip-joint 29 Years after Operative Reduction of a Dislocation.*
8. Riedel. *Slow Progressive Destructive Process in an Extremity, Including Both the Skin and the Underlying Tissue.*
9. Ewald, P. *Sprain of the Knee and Laceration of the Middle Lateral Ligament.*
10. v. Ruediger, R. *Experiences with Decompression Trephining and Puncture of the Corpus Callosum, for Brain Compression.*
11. v. Ruediger, R. *Extirpation of the Gasserian Ganglion.*
12. v. Ruediger, R. *Experiences with the Resection of the Posterior Spinal Nerve Roots for Spastic Paralysis.*
13. Siebert, K. *Isolated Fracture of the Sella Turcica.*
14. Esau. *Remarks on Olecranon and Occipital Spurs.*

4. The author reports the results obtained in 12 cases where the omentum was sutured to the abdominal wall in the hope of sidetracking the portal circulation. In seven of the cases the ascites returned, and the patients died. In the remainder of the cases the results were good. One patient has been in good health for seven years after the operation and never had to be tapped. Another had tappings for a time after the operation but finally got along without them. He believes that this operation is not done enough. There is little risk connected with it, and the opportunities for cure are great. [J. B. S., Jr.]

Wiener Klinische Wochenschrift.

No. 45. November 7, 1912.

1. Hamburger, F. *The Mechanism of Psychogenic Diseases in Children.*
2. Lipschütz, B. *Protozoan Findings in Chronic Pemphigus.*
3. *Bauer, J. *Cases of Tetany and Osteomalacia.*
4. Keri, W. *Experiences with Neosalvarsan.*
5. Löwit, A. *Contribution on the Myomata and Primary Sarcomata of the Stomach.*
6. Winter, M. *Suggestions for the Combating of Tuberculosis.*
7. Martell, P. *Municipal Apothecaries in Italy.*
8. Sofer, L. *Social Medical Review. (Conclusion.)*
9. Pach, H. *The Second Educational Congress of Occupational Hygiene at Frankfurt am Main. (Conclusion.)*

3. Bauer reports from Schmidt's university clinic at Innsbruck a series of illustrative cases as a contribution to the pathogenesis of the osteopathies due to calcium privations, considering especially tetany in nephritis and tetany with osteomalacia.

[R. M. G.]

Proceedings of the Royal Society of Medicine.

Vol. 5. No. 9. July, 1912.

1. Dore, S. E. *(a) Circumscribed Lichenification. (b) Acquired Syphilis in a Girl Aged Ten.*
2. Evans, W. *Multiple Scars on the Body and Limbs.*
3. Gray, A. M. H. *Potassium Iodide Eruption.*
4. Little, E. G. G. *Erythema Multiforme.*
5. MacLeod, J. M. H. *Xanthoma Tuberosum Multiplex.*
6. Meachen, G. N., and Provis, F. L. *Alopecia Areata Cured by Pregnancy.*
7. Morris, M., and Dore, S. E. *Ichthyosis with Late Development.*

8. PRINGLE, J. J. *Urticaria Perstans Annulata et Gyrata.*
9. SEQUERIA, J. H. (*a*) *Pityriasis Rubra Pilaris.* (*b*) *Solar Epithcliomatosis.*
10. WHITFIELD, A. (*a*) *Generalized Sarcomatosis.* (*b*) *Developing Systematized Nevus.*
11. MORRIS, M., ET AL. *Prurigo, Pruriginous Eczema and Lichenification.*
12. MORRIS, M. *Case of Ichthyosis.*
13. SEQUERIA, J. H. *Nevus Unius Lateris of Skin and Mucous Membrane.*
14. ADAMSON, H. G. *Acne Scrofulosorum.*
15. MACLEOD, J. M. H. *Keloids of the Ears Following Piercing for Ear-rings.*
16. DAVIS, H. *Two Cases of Summer Eruption.*
17. PERNET, G. *Mycosis Fungoides d'Emblée.*
18. THOMSON, ST. C. *Four Cases Illustrating Disease of the Sphenoidal Sinus.*
19. WATSON-WILLIAMS, P. *Disease of the Sphenoidal Sinus.*
20. TILLEY, H. *Chronic Suppurative Sinusitis.*
21. STUART-LOW, W. *Disease of the Sphenoidal Sinuses.*
22. KELSON, W. H. *Chronic Sphenoidal Sinus Suppuration.*
23. POWELL, H. F. *Sphenoidal Sinus Suppuration.*
24. HORSFORD, C. *Extensive Ethmoidal and Sphenoidal Sinus Disease.*
25. CATHCART, S. C. *Growth on the Left Vocal Cord.*
26. HETT, G. S. *Left Sphenoidal Sinus Suppuration.*
27. DAVIS, H. J. *Suppuration in the Accessory Sinuses.*
28. PURSLOW, C. E. (*a*) *Polypoid Endometritis.* (*b*) *Gravid Uterus with Fibroids.*
29. WHITE, C. (*a*) *Specimen of an Epignathus.* (*b*) *Generalized Edema of the Fetus.*
30. FORSYTH, J. A. C. *Hematocele of the Canal of Nuck.*
31. WILLETT, J. A., AND WILLIAMSON, H. *Dystocia Due to Premature Contraction Ring.*
32. *MCILROY, A. L. *The Physiological Influence of Ovarian Secretion.*
33. BELL, W. B. (*a*) *The Pathology of Uterine Casts Passed During Menstruation.* (*b*) *Bilateral Carcinomatous Sarcoma of the Ovaries.*
34. COLLINS, E. T. *Double Ruptured Ectopic Gestations.*
35. ROUTH, A. *Presidential Address.*
36. PICKERILL, H. P. *Some Pathological Conditions Found in the Teeth and Jaws of Maori Skulls in New Zealand.*
37. MUMMERY, J. H. *The Nerve Supply of the Dentine.*
38. BARCLAY, A. E., AND MILLIGAN, W. *The Value of Radiography in the Detection of Mastoid Disease.*
39. SMITH, J. L., AND MAIR, W. *A Method of Studying Degeneration in Nerve-Fibres by Means of the Hot Stage.*
40. WRIGLEY, F. G. *The Cerebrospinal Fluid as an Aid to Diagnosis in Suppurative Meningitis of Otitic Origin.*
41. SHATTUCK, S. G., AND DUDGEON, L. S. *Results of Drying Non-sporing Bacteria in a Charcoal Liquid Air Vacuum.*
42. *MUMMERY, L. *Cases of Intractable Constipation Treated by Operation.*
43. CARSON, H. W. (*a*) *Thrombosis of the Veins of the Colon Causing Obstruction.* (*b*) *Right Duodenal Hernig.*
44. CLARK, A. J. *The Influence of Ions upon the Action of Digitalis.*
45. CUSHNEY, A. R. *The Action of the Digitalis Series in Heart Disease.*

SUPPLEMENT. OCTOBER, 1912.

46. *MOORE, N. *Prevalence and Intensity of Syphilis in the Past and at the Present Day.*
47. *POWER, D'A. *Treatment of Syphilis.*
48. *MOTT, F. W. *Relation of Syphilis to Public Health.*

32. The author presents a valuable and extensive literary, theoretic and experimental study of ovarian secretion, from which are derived the following conclusions:

(*a*) The ovary controls the nutrition of the uterus and other reproductive organs.

(*b*) Removal of the uterus, or retention of the uterine secretion, does not affect the functional development of the ovaries.

(*c*) Removal of one ovary causes compensatory hypertrophy of the other in the anoestrous state.

(*d*) The interstitial cells perform the chief rôle in maintaining the nutrition of the uterus.

(*e*) The ovaries do not play such an important part in the elimination of calcium as is supposed.

(*f*) Removal of the ovaries in rabbits causes an increased deposit of fat in the tissues.

42. Mummery reports 30 cases of obstinate constipation successfully treated by laparotomy with various entero-anastomotic procedures.

46, 47, 48. These articles, with the discussion upon them, constitute a valuable symposium on syphilis, with an admirable introduction and summary by Sir Henry Morris. [R. M. G.]

Obituary.

ARTHUR TRACY CABOT, M.D.

IT is not easy, at once adequately and briefly, to set forth even the salient facts and evolution of the life of a man of such varied activities and interests as was the late Arthur Tracy Cabot.

He was of stub-twist ancestry, Scotch, Irish, English and Norman French (Chabot, Island of Jersey) blood mingling in his veins. His great grandfather, Thomas H. Perkins, was perhaps the most conspicuous merchant of his day in Boston, public spirited, enterprising, a large man in every sense of the word. The Perkins Institution for the Blind is one of his monuments. Mr. Samuel Cabot married one of his daughters and became a partner in the firm of Perkins & Company. Dr. Samuel Cabot was the second son of this marriage, the first of the family to embrace medicine as a profession. After the completion of his medical studies in Paris he went to Yucatan on the Stevens Expedition. His independence of thought and action, his sterling character, his services to this community as one of its leading practitioners and for many years surgeon to the Massachusetts General Hospital are still fresh in the memory of many.

Dr. Samuel Cabot married his distant cousin, Hannah Jackson, daughter of Judge Jackson, whose brothers James and Patrick were as eminent in medicine and business as was he in law.

Arthur, third son of this marriage, was born in 1852. From the Perkins-Cabot side he inherited largely his marked taste for nature, out-of-door manly sports and love of art, traits so prominent in some of the race as to be almost overmastering. From the Jackson side he derived

his physique, a slight but wiry frame, dominated by a will and sense of duty which go far to promote sustained effort. Promptly after his graduation at Harvard in 1872, he began the study of medicine, taking his M.D. in 1876, and serving as Surgical Interne at the Massachusetts General Hospital. He then went abroad, giving special attention to surgical pathology, but neglecting no opportunity of laying a firm foundation in all pertaining to the Healing Art. In Vienna and Berlin he got nothing helpful in the line of antiseptic surgery; but later passed a month in London, heard Lister's Inaugural Address at King's College, and ever after kept on the crest of the advancing wave of clean surgery. In 1877 he began general practice in Boston, and steadily won recognition, alike from the profession and the public. To surgery he had strong leanings from the first; but, conservative, cautious, ruled by reason more than impulse, always thinking things out to their ultimate results, it was not until ten or more years later that he gave up all strictly medical practice.

As a general surgeon he was eminent; as a genito-urinary surgeon, pre-eminent. True surgeon that he was, his head always ruled his hand. He could not be persuaded into operating. He must be convinced in his own mind of its necessity or desirability; nor would he undertake any operation which he thought could be better performed by another. This absolute integrity of character, combined with rare soundness of judgment and with manual skill, won him the implicit confidence of all who came into contact with him, and naturally led to a wide consulting practice. He was as pains-taking and conscientious in the after-treatment as in deciding whether or not to operate. He never in the least shirked responsibility; but it wore upon him more than it does upon some men of different temperament, and prevented him from doing as much work as he might otherwise have done. From 1878 to 1880 he was Instructor at the Medical School in Oral Pathology and Surgery; from 1885 to 1896, Instructor in Genito-Urinary Surgery. He would, doubtless, have become full Professor but for his election to the higher position on the Corporation in the latter year. He was for several years Surgeon to the Carney Hospital, Assistant Surgeon at the Children's Hospital from 1879 to 1881, Visiting Surgeon 1881 to 1889; Surgeon to Out-Patients at the Massachusetts General Hospital, 1881 to 1886; Visiting Surgeon, 1886 to 1907.

Among his contributions to general surgery may be mentioned his use of the valve acting dressing and chlorinated soda irrigation for empyema operations, and a wire splint for fractures of the lower leg, devised while Surgeon to the Children's Hospital, in large use throughout the world, and, curiously enough, save in Boston, known by his name. It displaced the old fracture box. He early advocated and practised incision *without drainage* for tubercular peritonitis. In 1874 to 1875 he assisted his father in the two first successful abdominal operations connected with the Massachusetts General Hospital. They were on hospital patients, but the operations were done in a neighboring house in Allen Street. It appears that Dr. Arthur Cabot did the first successful abdominal operation within the hospital walls in 1884, on a case of large strangulated umbilical hernia. The patient was admitted to Dr. Hodges' service. He, however, being ill, Dr. Bigelow was taking his place, and Dr. Cabot, then Surgeon to Out-Patients, was assisting the latter. Dr. Cabot was called in the evening. Dr. Hodges had recently published a paper on this condition, concluding that operation was always fatal, recovery occasional without operation. Dr. Cabot therefore sought Dr. Bigelow, whom he found at Dr. Hodges' house. He stated the case. Dr. Bigelow: "What do you want to do?" Dr. Cabot: "Operate." Dr. Bigelow: "Whether you operate or not the patient will die, therefore do as you like. Is not that so, Dr. Hodges?" Dr. Hodges: "No, if you operate he will die; if you don't he may get well." After some discussion, Dr. Bigelow agreed that Dr. Cabot should do as he liked, so he returned to the hospital, operated, and in a few weeks the patient was well. We tell the story thus in full for the light it throws on the state of surgery less than thirty years ago. In 1886, Dr. Cabot had three successful cases of laparotomy in rapid succession, one for ovarian cyst, two for fibroids.

Dr. Cabot's qualities did not escape the keen eye of the late Dr. Henry J. Bigelow, who made him his heir, as it were, in litholapaxy, and thus led to Dr. Cabot's becoming the leader in genito-urinary surgery that he was, admitted to be such far and wide.

As evidence of his thoroughness and of the soundness of his judgment it may be mentioned that in his paper on "Rupture of the Bladder," 1891, and in another on "Rupture of the Urethra," 1896, he laid down rules of procedure which stand unchanged today.

Here, as well as elsewhere, may be mentioned that about 1886, realizing the importance of immediate pathological examination of many surgical cases while under operation in order to determine the scope and nature of the necessary operation, he and his brother Samuel established a fund of $10,000, known as the "Samuel Cabot Fund for Pathological Research," in memory of their father. The interest on this fund is used for paying a pathologist to be on hand operating days and making such examinations as the surgeons require. If not the first, it was surely an early effort to make thorough pathological study go hand in hand with the surgical operation. Dr. W. F. Whitney was appointed and still holds the place. Dr. Cabot was also the prime mover in starting the Clinico-Pathological Laboratory, was a leader in raising the necessary funds and planning the building. Dr. J. H. Wright was appointed and is still Director. Of his brilliant

services this is not the place to speak. Again, Dr. Cabot became Librarian to the Hospital, and evolved order from chaos in the book and case records, both now thoroughly available under Mrs. Myers' charge.

He was President of the Massachusetts Medical Society in 1905 and 1906. In his visitations to the District Societies he did yeoman service in stirring up our profession to more actively interesting itself in the campaign against tuberculosis. It was probably this leadership which led Governor Guild in 1907 to appoint him a Trustee of the Massachusetts State Hospitals for Consumptives, and at the first meeting of the Board, in September of that year, he was elected Chairman. The amount and quality of his work in this capacity deserves fullness of treatment, which, it is to be hoped, it will receive; but which it is impossible to give here. In his automobile he traversed the State to select suitable sites for the three hospitals for one hundred and fifty patients each. The North Reading Hospital was opened in the fall of 1908, those of Lakeville and Westfield early in 1909. The appropriation of $300,000 was not exceeded, and the requirements were fully met at a cost of $700 a bed as against nearly $2000 a bed for the Boston Consumptives Hospital at Mattapan. The Rutland Hospital was then placed under the Board. Only those on the inside fully know how much of the conspicuous success of this new departure was due to the compelling wisdom and unremitting labor of Dr. Cabot. In this, as in all his other work, its quality was only matched by his modesty. He was influential in procuring the passage of the bill requiring instruction in hygiene and preventive disease in the public schools. His counsel was sought by the General Electric Company with regard to the safe-guarding and promoting the health of its employees at Lynn and Pittsfield. So deeply did he become interested in this line of work that in the spring of 1910 he retired from all practice and its emoluments that he might husband his strength for public work alone. During about thirty years he published over one hundred and twenty papers. The last is to be found in the November *Atlantic Monthly*, a plea for the prevention and treatment of tuberculosis in childhood. He was a member of many medical societies and of the American Academy of Arts and Sciences.

This is a meagre account of his strictly professional activities. In 1896, as has been stated before, he was chosen a member of the Corporation of Harvard College, that small body of seven which fills its own vacancies, has exclusive charge of the funds, the initiative in most appointments, and may, in a way, be compared, as regards the government of the University, to the Senate of the United States; though it has more power, relatively, to that of the lower House—the Overseers. Membership in the Corporation is no sinecure. It involves a deal of work. Questions large in variety and great in moment constantly arise and demand careful, deliberate, ripe judgment. Nobody in active professional or business life can accept the honor and the service without large sacrifice of time and strength, no physician without also loss of income. After careful consideration he accepted the election, and we saw the unprecedented occupation of two seats on the Board by Physicians. The part which he and Dr. Walcott have taken in the marvelous development of the Medical School can be, in a measure, imagined by the most matter of fact. They were the Building Committee on the part of the Corporation. The prominent place which preventive medicine, of which the tuberculosis question is only a part, has been assuming in the past twenty years cannot but have enhanced his interest in the latter.

His feeling and love for art, always keen and discriminating, led to the Trusteeship in the Museum of Fine Arts in 1899. Here, too, he was a worker. Everywhere and always the "good enough" for him was nothing short of the best of which he was capable. In social life he was more and more sought after. He had at times a certain grimness of manner which could be raised to the nth power by anything mean, petty or under-handed. This grimness concealed more or less to the casual acquaintance the steady glow of one of the warmest of hearts and the most lovable of natures; but abated, in a measure, as he grew older. He was fond of horses and a good judge of them, played polo and rode to hounds. No form of boating was foreign to him. Tennis, golf and the like he enjoyed and played when he could get time and opportunity. His vacations were mostly spent in hunting and fishing trips from Florida into Canada, and as far as the Rockies. Shortly before his death he sold his interest in the Long Point Ducking Club, probably the best in the country, and devoted the proceeds to the purchase and maintenance of land in Canton, his legal residence, as a playground for the town.

Combining harmoniously and in a high degree intelligence, sound judgment, courage both moral and physical, sense of duty, manual dexterity and mechanical skill, he devoted his powers to the service of others, with small thought of pecuniary return. For him to give was, indeed, more blessed than to receive. He was, in truth, a noble gentleman. His activity has ceased; but bountiful crops will continue to mature from the seed he so widely planted, and the example of his life cannot but be a source of inspiration and strength to those who were privileged to know him and of him, what he did and how he did it. He taught us how to live, and, again, how to face disease and death with cheerful fortitude.

He is survived by his widow, Susan, daughter and only child of the late George O. Shattuck, a leader of the Suffolk Bar.

It is not common to admit to our columns so extended a notice, but Dr. Arthur Cabot was no common man. F. C. S.

ROBERT FLETCHER, M.D.

Dr. Robert Fletcher, Principal Assistant Librarian at the Surgeon General's Office, Washington, D. C., died on Nov. 8, 1912. He was born in Bristol, England, on March 6, 1823, was educated at the private schools of his native city, and began the study of law under his father, an attorney of Bristol, in 1837. Deciding to take up medicine, however, he devoted five years to its study at the Bristol Medical College and the London Hospital. In 1844 he received the diplomas of the Royal College of Surgeons and the Society of Apothecaries, and coming to the United States settled at Cincinnati, Ohio, in 1847.

At the outbreak of the Civil War, Dr. Fletcher was appointed Surgeon of the First Regiment of Ohio Volunteer Infantry, and on Nov. 20, 1863, was commissioned Surgeon, U. S. Volunteers. He served in the field until 1863, when he was placed in charge of Hospital No. 7, Nashville, Tennessee, and was subsequently appointed Medical Purveyor of the Army at that post. On March 13, 1865, he was brevetted Lieutenant Colonel and Colonel of U. S. Volunteers "for faithful and meritorious service during the war," and was honorably mustered out on August 31, 1867.

In 1871 Dr. Fletcher was ordered to Washington and while on duty in the Provost Marshal's Bureau of the War Department, was active in the preparation of the valuable and important "Statistics, Medical and Anthropological," published by that office in 1875. He was the author of the introductory treatise on anthropometry in this work. In 1876 he was transferred to the Library of the Surgeon General's Office, and as Assistant Librarian of the office was associated with Dr. John S. Billings in the preparation and publication of the first series of the Index Catalogue (16 vols., 1880-1894). After Dr. Billings retired from the army to assume the Professorship of Hygiene in the University of Pennsylvania in 1895, Dr. Fletcher was the leading spirit in the redaction of the Index Catalogue up to the time of his death, under the direction of the successive Librarians, Colonel David L. Huntington and Majors James C. Merrill, Walter Reed and Walter D. McCaw. In 1879 Dr. Billings and Dr. Fletcher were associated in the editorship of the *Index Medicus* (First Series, 1879-99) and when the latter journal was revived by the Carnegie Institution in 1903, Dr. Fletcher was its Editor-in-Chief for nine years (1903-9). He was also Lecturer on Medical Jurisprudence at the Columbian University, Washington, D. C., in 1884-6, full professor 1886-8, and lecturer on the same subject at the Johns Hopkins University during 1897-9. On April 14, 1910, he received the rare award of the gold medal of the Royal College of Surgeons of England.

During his active career, Dr. Fletcher made frequent and valuable contributions to anthropology and the history of medicine. During his active life Dr. Fletcher was socially prominent in the scientific and literary circles of Washington and was president of the Philosophical, Anthropological and Literary Societies of that city and of the Cosmos Club. His loss will be felt by the profession at large and by his many friends.

Miscellany.

COLOR-BLINDNESS AT SEA.

A recent issue of the London *Telegraph* quotes from the procedures of the Departmental Committee on Sight Tests, an interesting memorandum by Dr. W. H. R. Rivers relative to the bearing of color-blindness on efficiency in seeing lights at sea.

"It is universally acknowledged he says, that even color-blind persons are able to recognize the three lights used at sea, probably with ease and certainty under ordinary conditions, while a person who can be shown to be definitely color-blind will yet for practical purposes attain considerable success in the ordinary business of naming colors. The color-blind person is able to distinguish by other criteria colored objects which he is unable to distinguish by difference of hue. How far he is able to make use of these critieria depends on his general intelligence and on the amount of attention he has devoted to color. These criteria are of three kinds—differences of hue, of luminosity, and of saturation. A red and green light, which are wholly different to the normal eye, may also be wholly different on account of their difference in luminosity and saturation, to a person who confuses red and green, and of these saturation is especially important. Taking the lights used at sea as examples, the white light is generally yellowish, and the red light also yellowish, and therefore these two lights will appear in the same hue to the red-green blind person, but they differ wholly in saturation. While the color in which the red light appears has a very high degree of saturation, the white light will obviously have a very low degree of saturation, and it is probably as a result of this difference of saturation that the color-blind person never confuses these two lights. The recognition of the green light is a more difficult matter for the color-blind, partly on account of the greater variability in the hue of the green lights used at sea. Another property of color-blind

vision is one of supreme practical importance. Their power of discrimination in relation to the criteria mentioned above is continually exercised throughout their whole lives, and as a result of this exercise it is found that the color-blind can distinguish differences of luminosity and saturation more delicately than the person with normal color vision. This increase, he suggests, may be so considerably that color-blind persons may actually be able to see colors which are so faint as to be totally invisible to the normal eye. The importance of this is obvious. If the criteria of which he makes use are those suggested, it is to be expected that the capacity of a color-blind person who has found his way into a responsible position at sea for the discrimination of differences of saturation, luminosity, and of such hues as he perceives will be greatly heightened. Dr. Rivers states that he should be quite prepared to find that a color-blind person may often be able to recognize a red, green, or white light even sooner than a normal person. He points out that his account is merely tentative, but suggests that there is urgent means for an experimental inquiry to determine how far such an account is correct Should it be proved to be even approximately correct it will be obvious that no condition is more important than constancy in hue of the lights used at sea. He advocates the international standardization of the lights used at sea, in which event many cases of color-blindness might be allowed to hold responsible posts with safety, the only cases whose exclusion would be absolutely necessary being those with diminished luminosity of red. In reference to the various hues of green, he remarks that a blue-green light will never be confused with the red or white lights used at sea, and he points out that the essential step in the change he advocates, the choice of a blue-green light of constant hue for the standard green light, has already been taken by Great Britain and Germany, and possibly by many other nations."

Color-blindness remains one of the physiologic phenomena not perfectly understood. Dr. Rivers's exposition of his theory seems a contribution of definite value to the elucidation of its practical problems, especially as concerning its bearing on safe efficiency in navigation.

AN EARLY DESCRIPTION OF PELLAGRA.

AMONG the earliest observers of the disease pellagra was one Gaspar Casal, a Spanish Physician, who in 1735 described it, under the name of *mal de la rosa*, as occurring among the peasants of the Asturias. A correspondent of the *British Medical Journal*, in the issue of that publication for Oct. 19, calls attention to a still earlier account, published in 1707, by Pedro Casal, perhaps the father of Gaspar. The clinical description in Pedro's Spanish work is so vivid and accurate, that the following translation of it seems to deserve republication at a time when interest in pellagra and its history has been freshly aroused in our own country.

"This is a disease the most horrible that can be conceived, and it presents before all a symptom which consists in a certain crust, which although at first red soon degenerates into a dry blackish crust split by cracks reaching down to the flesh which cause great pain. It must be noted that for this affection to have the name of pellagra and rose disease, there must be adherent crusts to the metacarpus and metatarsus since, although they appear on other parts of the body, they do not receive this name. These crusts disappear in the summer on account of the sweat, and in the place which they occupied there remain certain red surfaces like scars of burns. From the reddish color of the scar is derived the name rosa which is given them here. Every year at the approach of spring the crusts come out anew, and in those in whom the disease is not so developed there appear other smaller crusts. There is another situation where this disease shows itself, and that is at the lower part of the neck over the point of junction of the clavicles with the sternum. I have asked some of the persons afflicted with this disease to see if one could discover something about the etiology, and here is what they have told me. In August last I saw a man who made the following statement: That he was accustomed to see himself attacked; that he had some appetite, but when he ate he fell into a state of lethargy. In the month of March he remained in a state of stupor. He felt a great fatigue in all his limbs, and particularly in his legs. In walking his head was affected and he fell down, but he never lost consciousness. He was always languid; his feet were cold, his mouth dry, and his tongue foul. His wife suffered in the same way, and said that she could not bear the heat of the sun or fire, and that she never felt cold. Some days before the spring there appeared some very large crusts on the metacarpus and metatarsus, which in the spring fell off, leaving a scar. Other patients said that vesicles came

out in their mouths, that their legs were limp, but that when they began to walk they got stronger. All the skin of the hands was covered with a black crust; wherefore the "disease of the rose" was in reality black. We may sum up the symptoms as follows: First, nodding of the head. Secondly, vesicles in the mouth. Thirdly, great fatigue. Fourthly, crusts on the hands and feet, and those which appear on the neck in the manner of a collar. Fifthly, the burning heat which they feel in bed. Sixthly, the want of resistance to heat and cold. And, finally, a tendency to weeping to appear without manifest cause. Many of the cases end in suicide. Their food is maize, milk, chestnuts, herbs, and nuts, and the patients have obtained great relief when their food has been replaced by other substances of a more sustaining kind."

AN ARTIFICIAL RESPIRATION APPARATUS.

THE following item in a recent issue of the *Scientific American* describes an ingenious apparatus devised by Dr. K. A. Fries, of Stockholm, for the performance of artificial respiration.

"The apparatus is made up of a wooden base in the form of a shield with a part at one end for resting the head, and to this is fitted a light steel frame consisting of a pair of uprights joined by a cross-bar. On the bar are automatic clamp straps for fastening the arm. On the chest a canvas girdle or band is placed so as to compress this part of the body, adjusting properly for size by means of eyelets. The device is first laid on the floor or table and the metal frame foulded out, laying the patient on the base, and the wood headpiece then adjusts the head and throat automatically in the right position. We then apply the girdle on the lower part of the chest and fit it snug by the hook and the cord. Adjusting the crossbar to a good height, we strap the wrists loosely to it. Then the frame is ready to be operated for producing respiration. The frame carries chains and cords which connect its movements by means of pulleys with the chest girdle, so that the chest is compressed at the right time.

"The work of respiration is begun by extending the levers horizontally backward so as to produce inspiration, and in this position the chest girdle lies loose. We then draw up the levers to the vertical and bring them down toward the lower part of the body so as to give the expiration, and here the cords and pulleys act so as to compress the chest band and aid in expelling the air from the lungs. At the same time the patient's tongue is drawn outward by the other hand by means of a handkerchief or ring forceps. The movements are kept up regularly back and forth, keeping time with one's own breathing, or about sixteen times a minute.

"The device is very compact and can be folded up so as to occupy a space of three feet by two feet by four inches, and may be hung on the wall or stowed away anywhere."

Despite the compactness of the apparatus, however, one is led to wonder, after reading this description, whether one could not administer artificial respiration quite as promptly, easily, and efficiently by the direct and familiar classic manoeuvres.

THE SANITATION OF THE PHILIPPINES.

ON Oct. 24, at the Lake Mohonk Conference, one of the principal addresses was by Dr. L. M. Mans, U. S. A., in which he emphasized the improvement in sanitation in the Philippine Islands under American administration. He said in part:

"Little attention was paid to sanitation by the Spanish authorities during their control, and Manila at the date of the American invasion resembled European cities in the sixteenth century. Health matters as late as 1898 were administered by a third-class official, one of whose principal duties was collecting fees for death certificates. The archipelago was frequently visited by Asiatic cholera, which swept off hundreds of thousands of the natives, and it is said that in 1888 three thousand of the inhabitants died daily in Manila during the epidemic. The habit of the natives of eating with their fingers out of a common family tray or bowl was a great factor in spreading disease.

"Soon after the arrival of the Americans, municipal, provincial and insular boards of health were established, and health laws passed. Vaccination against smallpox was made compulsory, and over three million of the inhabitants were vaccinated. A census was made of the lepers of the islands, a leper colony established and their segregation effected. Bubonic plague

was present in Manila in 1900. A crusade was inaugurated against the rats of the city in 1901, and hundreds of thousands of rats were killed. The dead rats were labelled and sent to the laboratory for microscopical examination, with the number of the house from which they were obtained. All premises on which diseased rats were found were closed for occupancy until disinfected and put into habitable condition. By this means several thousands of the old stone houses were placed in sanitary condition."

RECENT DEATHS.

DR. GEORGE EBENEZER FRANCIS, who died on Nov. 20 at Worcester, Mass., was born in 1837. He received the degree of A.B. from Harvard College in 1858 and that of M.D. from the Harvard Medical School in 1863; and during the Civil War served as a surgeon in both the army and navy. He was a member of the Worcester Medical Association, and a retired Fellow of The Massachusetts Medical Society of which he was president in 1902 and 1903.

DR. LEON H. HARVEY, who died recently at New Rochelle, N. Y., was born in Buffalo, N. Y., in 1837. He received the degree of M.D. from the Philadelphia College of Physicians and Surgeons, and practised his profession in Baltimore, Md., and in Buffalo for many years.

DR. CEASAR A. VON RAMDOHR, who died last week in New York City, was born in Germany in 1855. He emigrated to the United States in 1872, and after working for a time as a druggist, studied medicine at the University of the City of New York. He was a founder of the Post-Graduate Hospital, was for 24 years vice-president and secretary of the German Polyclinic, and was also associated with St. Mark's Hospital.

DR. JOHN C. SUNDBERG, who died last week at Seattle, Wash., was formerly United States consul at Bagdad and physician to the Sultan of Turkey.

DR. WELLINGTON RECORD, who died on Nov. 11 in Quincy, Mass., was born at Bucksfield, Me., in 1861. He graduated from Amherst College in 1877, and in 1886 received the degree of M.D. from the Bellevue Hospital Medical College, New York. He immediately settled at Wollaston, Mass., where he had continued since that time in the practise of his profession. He was physician to the Quincy City Hospital, a member of the Norfolk South Medical Society, and a Fellow of The Massachusetts Medical Society. He is survived by his widow.

BOOKS AND PAMPHLETS RECEIVED.

The Treatment of Trachoma with Radium. The Use of Radium-Coated Plates for this Purpose by Charles H. May, M.D. New York, 1912. Reprint.

The Removal of Foreign Bodies from the Cornea and Conjunctiva by Charles H. May, M.D. 1912. Reprint.

Ocular Symptoms and Diseases Accompanying Adenoids by Charles H. May, M.D. 1908. Reprint.

A Method of Correlated Teaching of Pathology and Bacteriology in the Second Year of Medical Instruction by Frederick P. Gay. 1912. Reprint.

A Comparison of Paranuclein Split from Casein with a Synthetic Paranuclein by Frederick P. Gay and T. Brailsford Robertson. 1912. Reprint.

A Constant Temperature Oven for Paraffin Imbedding by G. Y. Rusk. 1912. Reprint.

The Antigenic Properties of a Protein Compounded with Casein by Frederick P. Gay, M.D., and T. Brailsford Robertson. 1912. Reprint.

The Antigenic Properites of Split Products of Casein by Frederick P. Gay, M.D., and T. Brailsford Robertson. 1912. Reprint.

Entwicklung und gegenwärtiger Stand der Immunitätsforschung in Amerika von J. G. Fitzgerald. Reprint.

A Rapid Method of Producing Bacterial Agglutinins by Edna Locke. Reprint.

A Comparison of Chemical with Microchemical Methods for the Determination of Varying Amounts of Glycogen in the Liver by G. Y. Rusk. Reprint.

Negative Photogropism in Diaptomus by Means of Strychnine by A. R. Moore. Reprint.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, Nov. 16, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1216	315	Pittsfield	8	1
Chicago	—	—	Waltham	5	—
Philadelphia	—	—	Brookline	6	—
St. Louis	—	—	Chicopee	10	8
Baltimore	—	—	Gloucester	6	2
Cleveland	—	—	Medford	7	1
Buffalo	—	—	North Adams	6	1
Pittsburgh	—	—	Northampton	7	0
Cincinnati	—	—	Beverly	9	2
Milwaukee	—	—	Revere	2	—
Washington	—	—	Leominster	3	—
Providence	—	—	Attleboro	6	2
Boston	190	44	Westfield	5	0
Worcester	28	11	Peabody	—	—
Fall River	36	15	Melrose	4	1
Lowell	22	7	Woburn	3	2
Cambridge	18	4	Newburyport	3	—
New Bedford	20	9	Gardner	2	0
Lynn	20	9	Marlboro	3	0
Springfield	34	8	Clinton	2	—
Lawrence	—	—	Milford	—	—
Somerville	14	3	Adams	6	1
Holyoke	18	6	Framingham	—	—
Brockton	15	1	Weymouth	—	—
Malden	10	2	Watertown	1	0
Haverhill	8	2	Southbridge	1	1
Salem	7	—	Plymouth	1	—
Newton	10	2	Webster	1	1
Fitchburg	5	2	Methuen	—	—
Taunton	10	—	Wakefield	3	—
Everett	3	—	Arlington	2	—
Quincy	—	—	Greenfield	3	1
Chelsea	12	1	Winthrop	2	—

Original Articles.

HEREDITY: WITH ESPECIAL REFERENCE TO THE LAW OF GREGOR JOHANN MENDEL, O. S. A.*

BY JOHN M. CONNOLLY, PH.D., M.D., LL.D., BOSTON,
Visiting Physician for Children, Mt. Sinai Hospital.

THE subject *heredity* opens up to our consideration some of the most interesting and important questions in the domain of medicine, of ethics and of sociology. Why are certain diseases like rheumatism and Huntington's chorea found in some families through many generations? What is the explanation of that curious family anomaly known as hemophilia, occurring, as a rule, only in males, but transmitted through the females? What is to be said of the various peculiarities that we find occurring from generation to generation, for example: congenital cataract, brachydactyly, supernumerary toes and fingers, harelip[6] and cleft palate,[7] all of which may frequently be traced back through several generations? Why is color-blindness found chiefly in men, rarely in women, but is transmitted by the defective man only through his daughters, so that, while his sons and their descendants are free, his grandsons, through his daughters are affected? What law underlies the transmission of red hair, of brown eyes, of the Bourbon nose, of the Hapsburg lip? What is the cause of the curious malady, "night-blindness," a pedigree of which extending through nine generations of one family and going back to the seventeenth century has been published by Nettleship?

What are we to tell our patients about maternal impressions? Are there really "Elsie Venners" or "Evarnes"[1] or "Theophrastus Longuets"[2]? Are tuberculosis[3] and syphilis inherited? What is known about dipsomania? Did Hartley Coleridge inherit his father's imperious desire for stimulants? Are men born with a craving for alcohol, and, if so, how far are they morally responsible for their indulgence in liquor? Are degeneracy and criminality transmitted and what of the so called "Jukes"[4] family? Why did Pericles, he of the "Golden Age," have two imbeciles and one maniac in his family? Why did the great Germanicus have such a son as Caligula? Why was Vespasian the father of such a son as Domitian, and Marcus Aurelius of Commodus?

What is the latest teaching of science about the inheritance of epilepsy, of idiocy, and what should be done about it? What is the material basis of inheritance? What reliance is to be placed on the stories we read about the production of a spineless cactus, of a seedless watermelon, of the artificial fertilization of the egg of the sea-urchin? Are these things possible? And if in the domain of plant life and the lower forms of animal life such wonders can be wrought, why not in the breeding of higher animals? I have some registered, Dutch-belted cattle with a pedigree extending back to the thirteenth century, and in every one of the offspring, even when they are mated with grades, the broad white belt is constant. What



FIG. 1.

This photograph of a portion of Dr. Connolly's herd illustrates Mendelian dominance of the belted condition in cattle. On the extreme right is the pure-bred Dutch-belted, "Jack, Jr." Next is the Holstein, "Lappy." On the extreme left is Lappy's daughter, "Lapita"—by a pure Dutch-belted sire. Next to Lapita is her daughter, "Gretchen," not to be distinguished in appearance from the pure-bred stock. Note the width of the belt in Lapita and compare with what is said of the tall hybrid pea-plants in the text. Lapita has had three belted and one un-belted offspring. Compare text.



FIG. 2.

The calf on the left is reddish-brown with a white belt and is the offspring of a sole-colored reddish-brown Jersey cow by a Dutch-belted sire. The calf on the right is from a Holstein-Dutch-belted cross, is black with a white belt and cannot be distinguished by inspection from a pure-bred Dutch-belted. In many years' experience the belt has never failed to appear if one of the parents was pure belted. The belted cross-breds, however, produce, on the average, one in four without the belt.

powerful factor here predominates to impose its stamp over less potent blood? Can we not, in some way, gain the clew to these fascinating and baffling mysteries, discover the law underlying their manifestations, and use it to the benefit of human kind? Is heredity as active for blessing as for bane? Is its sweep the same in the intellectual as in the physical sphere? Do the children of classical scholars learn more easily Greek and Latin? Are acquired characters inherited? Does the fact that Raphael's father was a painter; that Mozart's father was a violinist; that Beethoven was the son of a singer; that Mendelssohn was of a musical family; that the family of Bach through eight generations produced continuously, during a period of

* Read before the Guild of St. Luke, March 7, 1912.

nearly two hundred years, artists of the first rank; do these show the hereditary transmission of genius? And, if so, how shall we account for the solitary great men, like Bossuet, Goethe, Dante, Shakespeare? Did these have no fathers and leave no sons in the blood? And finally, shall we ever be able to regulate the sex of animal offspring? These questions and many others of vital importance to plant breeders, to animal breeders, to those who would increase the material prosperity of the nation, who would make two better blades of grass grow where one inferior one grew before, who would build up the best stock—equine, bovine or canine; who are interested in the ultimate problems of sociology with all their moral connotations and corollaries; who would understand, so far as may be, the basis of philosophical biology—are all bound up in the study of the subject of this paper. Indeed, rightly considered, the study of heredity brings us face to face with the most fundamental problem of biology, the ultimate nature of living matter.

It is evident, therefore, that in the short space allotted for my paper I can do little more than indicate, in a very general way, the results obtained by students of these problems, without attempting to more than outline the arguments leading up to their conclusions. And it will be simplest, it seems to me, if we start at the very beginning, proceeding from facts already well known to us.

"Omne ovum ex ovo." "Omnis cellula e cellula."[8] With the cell, then, let us begin, since from the cell we did begin, and within its microscopic compass lies the sum total of our heritage. The problems of inheritance are cell problems. In every animal and plant of whose development anything is known the body cells arise from the division of pre-existing cells; all are traceable back to the fertilized egg-cell as their common ancestor. The first step in development consists in the division of the egg into two parts, each of which is a cell like the egg itself. These then divide in turn to form four, eight, sixteen, and so on until step by step the egg has split up into the multitude of cells which build the body of the embryo and finally of the adult. The egg cell itself, as well as the sperm cell which fertilized it, arose by the division of a cell pre-existing in the parent body. So we have an uninterrupted series of cell-divisions extending backward from the present into the remote and unrecorded past. Life is a continuous stream. The death of the individual involves no necessary breach of continuity in the series of cell-divisions by which the life of the race flows onward. The individual body dies, it is true, but the germ cells live on, carrying with them the traditions of the race from which they have sprung, and handing them on to their descendants.[9]

Et quasi cursores vitae lampada tradunt.

We are, therefore, on the secure ground of a well-traveled highway when we say that all inheritable physical characteristics are in some way contained in the cell. That not the cytoplasm but the cell *nucleus* is the bearer of heredity, I consider established by many evidences, but I will adduce only the well-known facts of mitosis and maturation.

We have all observed under the microscope mitotic or karyokinetic phenomena such as I have here attempted to picture.

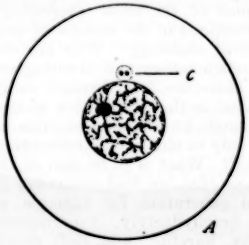


FIG. 3.

Fig. 3 is a diagram of a resting cell with its cytoplasm and its nucleus in which is seen the chromatin network, composed of minute granules. When karyokinetic changes begin this network first takes on the form of a continuous skein or *spireme* as it is called, shown in Fig. 4.

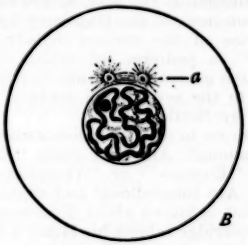


FIG. 4.

This skein or thread of life—an old term with a new meaning—then proceeds to break transversely into a characteristic number of distinct bodies known as chromosomes (Fig. 5),

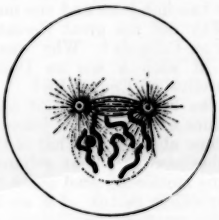


FIG. 5.

rod-like in appearance, definite and fixed in number for each species, a number regularly recurring in the division of *all* its cells, a number never odd, always even, for one-half must be

derived from each of the parents in every animal and plant arising by sexual reproduction. You will pardon me for recalling these, to you, already well-known and elementary facts of cell-division, but if you will have patience you will presently see their application to the problem of heredity. You will be interested to recall that in the shark the number of chromosomes is 36; in the mouse, 24; in the ox, the guinea-pig, and in man 16 (it is not alone the hairs of our heads that are numbered); and that 16 are found also in the onion.

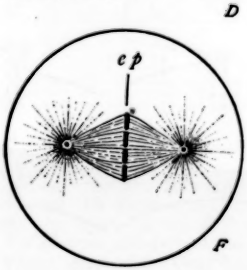


Fig. 6.

Figure 6 shows the so-called spindle at either pole of which is a star or *aster* formed of rays or astral fibers, the whole strongly suggesting the arrangement of iron filings in the field of a horse-shoe magnet. The chromosomes have, meanwhile, grouped themselves in a plane passing through the equator of the spindle. Each chromosome now proceeds to split lengthwise into two exactly similar halves (Fig. 7), which

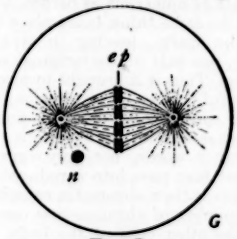


Fig. 7.

then diverge to opposite poles of the spindle (Fig. 8), and here each group of daughter

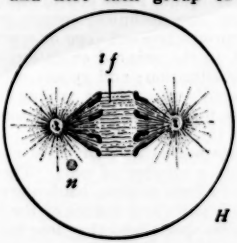


Fig. 8.

chromosomes finally gives rise to a daughter nucleus.

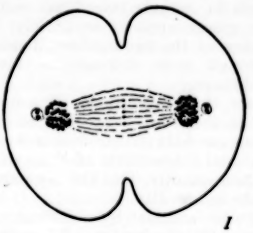


Fig. 9.

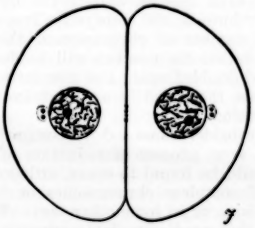


Fig. 10.

In every cell division, then, the nuclear chromatin network is converted into a thread (or string of beads of chromatin granules) which, split throughout its entire length into two exactly equivalent halves, gives to each daughter nucleus precisely equivalent portions of chromatin from the mother nucleus.

If this complicated mechanism of mitosis does not indicate the adaptation of means to an end, that end being the exact division of each separate chromatin granule of the original nucleus into equal parts in each daughter cell, then I know of nothing in the wide range of nature which does indicate design. And when we study further, seeking to know why such care should be taken to insure this exact partition of the chromosomes or their chromatic granules, the ascertained facts of "maturation" and of fertilization point directly to the chromosomes as the bearers of heredity.

The essential phenomenon of fertilization is the union of a sperm nucleus of paternal origin (the sperm indeed is little else than a nucleus) with an egg nucleus of maternal origin, these two fusing to form the primary nucleus of the embryo. This primary nucleus with its chromatin derived equally from the two parent nuclei, when it splits, as I have just described, conveys to each daughter nucleus exactly equal amounts of paternal and maternal chromatin. This has been verified by Boveri, Van Benedin, Carnoy, Hertwig, Strassburger and Weismann.

Rückert,[6] in Cyclops, was able to trace the paternal and maternal groups of daughter chromosomes not only into the respective halves of

the daughter nuclei of the two-cell stage, but into later cleavage stages. In fact Herla and Zoja[13] have in Ascaris traced the chromosomes from the sperm nucleus, separately from the chromosomes of the egg-nucleus, distinguishing them through each cleavage as far as the twelve-cell stage.

We have thus reached the conclusion that every cell in the body of the child receives from each parent one-half its chromosomes as distinct and individual descendants of those of the parents and consequently, that the two parents play equal parts in heredity.

But here we are met by a difficulty. If the chromosomes are the bearers of heredity and if their number is characteristic and definitely fixed for each species, and if the two parent cells contribute to the embryonic first cell each an equal number of chromosomes, then in the first generation the number will be doubled, in the second doubled again and presently in a few generations, there will be an inextricable tangle and confusion.

These considerations led Weismann[31] to predict that some process of reduction of chromosomes would be found to occur, either by elimination of complete chromosomes or by transverse division or in some other way. The fulfilment of this prediction is to my mind one of the most interesting results of recent cytological research. It has lately been demonstrated in a manner which is incontrovertible, that the reducing divisions postulated by Weismann actually occur, and this proof goes far to convince me of the essential correctness of the whole story which I have roughly sketched.

Mendelejeff predicted that new chemical elements would be discovered, of definite qualities, whose atomic weights would be such as to fill certain gaps in the table of atomic weights. Gallium, Scandium and Germanicum were discovered.

Le Verrier from a study of the oscillations in the orbit of Uranus predicted that a new planet would be discovered at a certain point in the heavens. And on turning the telescope in the direction indicated, on September 23, 1846, behold, Neptune was there!

The laws of the indestructibility of matter and the conservation of energy St. Thomas succeeded in demonstrating by pure metaphysical speculation.

That light does not travel instantaneously, Roger Bacon proved three centuries before it was practically illustrated by a German astronomer.[30]

So Weismann predicted on *a priori* grounds the reduction of the chromosomes and careful and complete observations have since demonstrated that this actually happens.

Before the egg-cell is capable of being fertilized it must first be matured; and a typical process of *maturation* is well shown in this diagram from Wilson.

The egg divides twice, both times very unequally, forming thus two smaller cells called polar cells or polar bodies. They take no part in the formation of the embryo. As a result of this process the chromosomes in the egg-nucleus are only half as numerous as before.

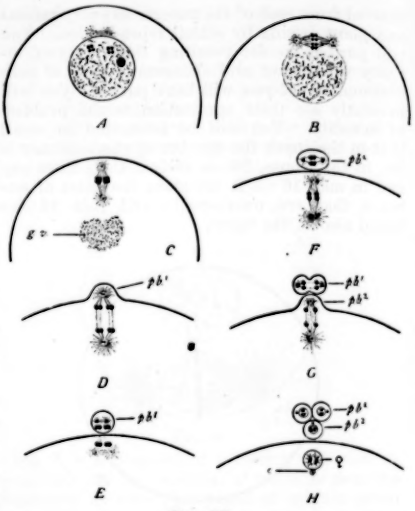


FIG. 11.

Maturation of the egg. Somatic number of chromosomes is four. p.b.—polar body. c.—centrosome. g.v.—germinal vesicle. Final result (H): three polar bodies and the egg-nucleus each containing *two* single chromosomes (*half* the somatic number).

From E. B. Wilson: "The Cell in Development and Inheritance," p. 177.

Exactly the same thing takes place in the nucleus of the sperm, leaving in it also, after maturation, one-half of the original number of chromosomes. Thus it is brought to pass, through this wonderful process of maturation, that when the egg and sperm nuclei unite the normal number of chromosomes for the species is restored.

Or, in other words, not only eggs but also sperms must first pass into a reduced or single state as regards their chromatin constituents, retaining a number of chromosomes one-half that found in the other cells of the body, and then by their union in fertilization the fertilized egg and the organism which develops from it is in a double condition. I ask you to allow me here to introduce two technical terms: *gamete*, to denote a reproductive cell (egg or sperm) which is matured, in the reduced condition, ready for union in fertilization; and *zygote*, which is the result of fertilization, of the joining together of two gametes to produce a new organism, at first one cell, in the double condition.

The zygote begins its individual existence by dividing into a number of cells. These become specialized to form muscle, bone, nerve and the other various parts and tissues of the body. By becoming thus specialized they lose the power to produce anything but their own particular kind

of specialized tissue.[10] They cannot reproduce the whole. This power is retained only by a set of cells early to be distinguished sharply* from the body or somatic cells, early collected into groups, protected and nourished by the somatic cells around them. These cells are not differentiated; they are direct lineal descendants of the fertilized egg itself.

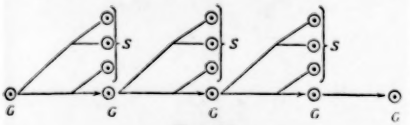


FIG. 12.

G is the germ-cell which by division gives rise to the body or somatic (S) cells and to new germ-cells (G) which separate from the soma and repeat the process in each successive generation (Wilson[9]).

If they are destroyed the individual loses the power of reproduction. But external influences acting upon the body which contains them will not be transmitted through the gametes to the zygote of the next generation, because the gametes are derived not from body cells but from germ-cells. Only such environmental influences, therefore, as directly alter the character of the germ-cells themselves will in any way influence the character of subsequent generations of individuals derived from those germ-cells. Body influences cannot be inherited.[11] It is a reversal of the true point of view to regard inheritance as taking place from the body of the parent to that of the child. The child inherits from the germ-cell, not from the parent body,[11] and that germ-cell owes its characteristics not to the temporary dwelling, the body built around it to protect and nourish it, but to its descent from a parent germ-cell of the same kind. Hence it is a physiological impossibility that acquired traits should be transmitted and the real marvel, namely that children should resemble their parents, is explained by their both being offspring of the same parent germ-stock. I think J. M. Barrie must have had this idea in mind when he said, "If we know ourselves well we know our parents also."

Evidence of the current belief that characters acquired by the body are transmitted is totally lacking, and conclusive evidence to the contrary exists in plenty. "Godron remarks that different races of men have from time immemorial knocked out their upper incisors, cut off joints of their fingers, made holes of immense size through the lobes of their ears or through their nostrils, tattooed themselves, made deep gashes in different parts of the body, and there is no reason to suppose that these mutilations have ever been inherited."[12] Small pox pits are not transmitted. The male children of a circumcised father still require circumcision. The Chinese woman of rank must still bind her feet as did her mother before her. Weismann[31] cut off the tails of mice for twenty generations in succession but without effect upon the character of the race. Heape[32] removed the fertilized egg of a long-haired albino angora rabbit from the oviduct previous to its attachment to the uterine wall and transferred it to the oviduct of a rabbit of a different variety—a short-haired gray Belgian hare. The egg developed normally in the stranger body and produced an individual with all the characteristics of the real (angora) mother, unmodified by those of the Belgian foster-mother. Young thus obtained were both long-haired and albinos.

An even more conclusive experiment was made by Castle and Phillips.[14] "A female, albino guinea-pig, just attaining sexual maturity was by operation deprived of its ovaries and instead of the removed ovaries there were introduced into her body the ovaries of a young, black female guinea-pig, not yet sexually mature, aged about three weeks. The grafted animal was now mated with a male, albino guinea-pig. From numerous experiments with albino guinea-pigs it may be stated emphatically that normal albinos mated together, without exception, produce only albino young—and the presumption is strong, therefore, that had this albino female not been operated on she would have done the same. She produced, however, by the albino male three litters of young which together consisted of six individuals, all black. The first litter of young was produced about six months after the operation, the last one about a year. The transplanted ovarian tissue must have remained in its new environment, therefore, from four to six months before the eggs attained full growth and were discharged, ample time it would seem, for the influence of a foreign body upon the inheritance to show itself were such influence possible."

I will merely allude in passing to the experiments of Tower[38] with the potato-beetle, and of Kammerer[39] with frogs (of whom it must be said, "*Qui nimium probat nihil probat*") both of which sustain the position I have taken.

We have, therefore, established three fundamental principles: first, the simplex condition of the gamete; second, the duplex condition of the zygote; and, third, the distinctness of body and germ-cells, with the consequent non-inheritance of "acquired" characters.

We are now in condition to grasp the clew to the modern science of heredity as afforded us by Mendel's law.[19]

Gregor Johann Mendel was a priest. He was born July 27, 1822, and died of Bright's disease in 1884, at the comparatively early age of 62. He was abbot of the Augustinian Monastery at Brünn, Austria. He was not a theorizer but an experimenter. Contrary to the methods of many so-called scientists, he collected his facts first and then deduced his theory.

* How sharply, may be understood from the profoundly interesting discovery of Boveri, regarding the fertilized ovum of Ascaris megalocephala. This divides into two cells and of these one is the progenitor of all germ-cells of the future animal. This cell retains all its chromatin. The other daughter-cell, which casts out part of its chromatin from its nucleus, is the progenitor of all the somatic cells which form the body of the future animal.[9]

Hitherto scientists had been working in the dark. The multiplicity of facts involved had bewildered them. From Plato to Darwin they had occupied themselves with fanciful theories, not systematic observations. Artemus Ward has a story of a man who languished for twenty-seven long and weary years in jail. At last a happy thought struck him; he raised the window and got out. Mendel raised the window. He was the first to state the problem. He was the first to show how to attempt its solution. His method was simple with the simplicity of genius. It was to study one characteristic at a time. The material which he used was simple. It consisted of common garden peas which he cultivated in the garden of the monastery. The conclusions which he reached were likewise simple, and were summed up in the paper which he read in 1865 to the Brünn Society of Naturalists of which he was president. In this paper he describes in detail his experiments, extending over eight years of arduous work, and enunciates the law, now known by his name.

Of Mendel's law, Dr. William E. Castle,[14] Professor of Zoology, Harvard University, writes that it is "the greatest single discovery ever made in the field of heredity," and his new book, just issued, concerns itself chiefly "with the operations of that law."

Professor Bateson[15] of the University of Cambridge, England, says: "I think that I use no extravagant words when I venture to declare that Mendel's experiments are worthy to rank with those which laid the foundation of the atomic laws of chemistry."

Professor Johannsen[16] of the University of Copenhagen, who lectured here in the Lowell Institute Course last December, says: "The work of the Austrian monk Mendel has furnished us the clue to this very complicated matter, and has established the general principles, the mathematical relations, and the name, Mendelism."

Dr. David Starr Jordan,[17] President of Leland Stanford University, quotes Kellogg to the effect that: "Biologists see in the establishment of the Mendelian principles of heredity the greatest advance toward a rational explanation of inheritance that has been made since the beginning of the scientific study of the problem."

It is evident that this priest had a scientific mind of high order, and that the life of one of whose work so many authorities are agreed that it is the beginning of a new era in biology,[37] and especially in the important question of heredity, must be worth the attention of the members of this Guild of St. Luke.

But it is to his epoch-making discovery in heredity that I must confine myself. His law may best be understood from an example. Some races of peas have purple flowers, others white. If now the purple peas be crossed with the white the hybrid offspring will all be purple. (Fig. 13.) Father Mendel called this purple color "dominant" since it alone appears, and as the white color disappears when crossed with the dominant purple, he called the white color "recessive." These two colors constitute what is known as a "Mendelian pair." In like manner certain varieties of peas grow stems some six feet in height, while others are short and do not exceed two feet. When these two varieties are crossed the resulting hybrids are not intermediate but are all tall, in fact, frequently taller than the tall parent. Father Mendel regarded the tallness and shortness as distinct alternative characters, and since tallness alone appears in the hybrid he called it the "dominant" and the shortness which disappears when crossed with the dominant tallness he called "recessive." Here again we have a "Mendelian pair." It is exactly like the result with which we are all familiar, of mating a black guinea-pig of pure race with a white one; the offspring will all be black (Fig. 14); none will be white. The black character dominates in the cross, while white recedes from view. Recent work indicates that a dominant character possesses some factor which is absent in its recessive alternative. Dominance and recessiveness, then, are merely presence and absence respectively of the factor in question.. When a black guinea-pig is crossed with a white, the factor blackness is introduced from the black parent, whether male or female matters not, and all the offspring are black. But if now two of the cross-bred black offspring be mated with each other, the recessive white

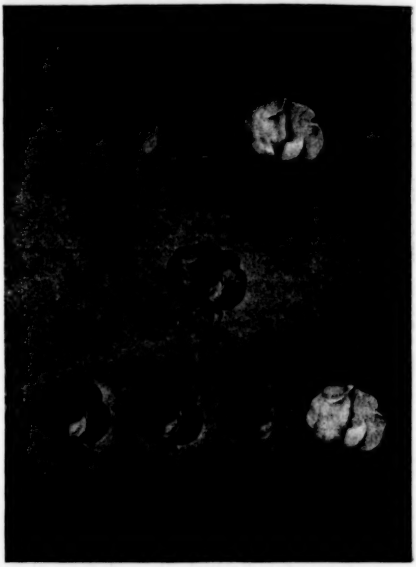


FIG. 13.
Color Heredity in Pea-Blossoms.
Mendel's Experiment.

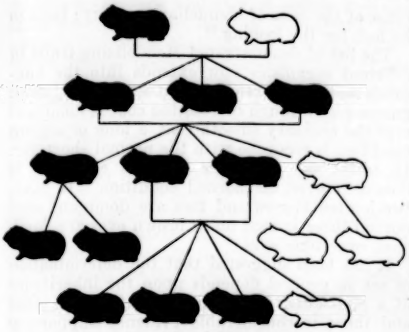


FIG. 14.
Color Heredity in the Guinea-pig.[18]

character reappears on the average in one of four of the offspring. Its reappearance in that particular proportion of the offspring may be understood from this diagram.

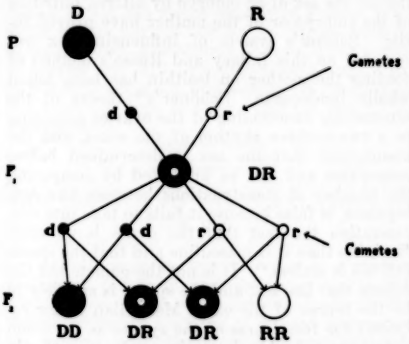


FIG. 15.

The gametes which united in the original cross were, one black, the other white in character. Both characters were then associated together in the offspring; but black from its nature dominated because white in this case is due merely to the lack of some constituent supplied by the black gamete. But when the cross-bred black individuals on becoming adult form gametes, the black and the white characters separate from each other and pass into different cells, since, as we have seen, gametes are simplex. Accordingly, the eggs formed by a female cross-bred black are half of them black, half of them white in character, and the same is true of the sperms formed by a male cross-bred black.

There are, therefore, three possible types of union which may occur between these eggs and sperms.

The first series will be pure black, the second pure white, and the third hybrids with black predominant and white disappearing. Further, on the doctrine of chance, these hybrid forms

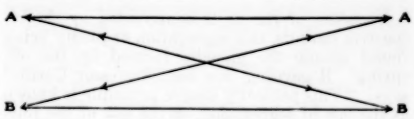


FIG. 16.
I. Eggs of type A may unite with A sperms (pure).
II. Eggs of type B may unite with B sperms (pure).
III. Eggs of type A may unite with B sperms (hybrid) and eggs of type B may unite with A sperms (hybrid).

will tend to be twice as numerous as either of the pure forms, so that in 100 fertilizations there will be 25 AA's, 25 BB's and 50 AB's, or put in algebraical form we get our old friend, $A^2 + 2AB + B^2$.

It is one of Father Mendel's important contributions to science that he actually proved the existence of this numerical relation of 3 to 1 among his hybrids. His proof consisted in continuing the process of rearing subsequent generations, and showing that those of type I, if interfertilized, remain constant from generation to generation as do those of type II under similar conditions. But on the other hand, those of type III when interfertilized give rise to *mixed* offspring, falling into the same three classes all over again. A little reflection will therefore show that the hybrid forms of the second generation are entirely comparable, both as regards the character of their germ-cells and as regards their body or somatic characters, to the hybrids of the first generation.

I wish time were allotted me for explaining how beautifully Mendel's law is proved true when races differing in two characters are crossed as, for instance, tall purple peas are crossed with short white; how in the second generation not only those types are produced, but also short purple and tall white, and by selecting the pure individuals, pure permanent races of these new types are *immediately* established. We thus obtain a new conception of organic characters, as factors which can be replaced by alternative characters without otherwise altering the constitution of the organism. The process is comparable with a chemical reaction, where one element may replace another in a compound; for example, by mixing silver nitrate with sodium chloride, silver chloride and sodium nitrate are produced. Or a grosser analogy may be taken from books in a case: a red book may be removed and replaced by a blue or a yellow one without altering the rest of the book-case, and similarly in pea plants, white flowers may be replaced by purple, or yellow seed by green. This independence of characters is one of the most striking discoveries of the Mendelian experiments. The Mendelian characters behave as units distinct and indestructible, which may meet in fertilization, pass out of sight in the offspring, but separate again at the formation of the gametes. Mendel's law then includes three principles: (1) the existence of *unit-characters*, (2) *dominance* in cases where the parents differ in a unit-character, and (3)

segregation of the units contributed by the respective parents, this segregation or purity being found among the gametes formed by the offspring. Regarding this last, Professor Castle[14] says: "This perfectly simple principle is known as the law of segregation, or the law of the purity of the germ cells. It bids fair to prove as fundamental to a right understanding of the facts of heredity as is the law of definite proportions in chemistry."

I know that some of you are thinking: "This is all very well. It is a pretty theory, but of what use is it? What good does it do to know about these technical, theoretical things?" Let me tell you. In the year 1900, the National Association of British and Irish Millers took official recognition of the disturbing fact that the annual wheat yield of Great Britain was grossly deficient, and that from a disease called "rust," a loss occurred each year amounting to five hundred millions of dollars ($500,000,000). With almost unparalleled sagacity they raised a fund to provide for a series of experiments and secured the services of Prof. R. H. Biffen,[20] of the University of Cambridge. He discovered that susceptibility to the disease "rust" is a Mendelian recessive, and following Mendel's law was able to produce to order wheat which retained all the good qualities of the best species of British wheat, which yielded, on the average, about ten bushels per acre more, and which was immune to the disease "rust."

Here is a tangible result of the work of the obscure Austrian priest, five hundred millions of dollars yearly saved to the country. This is worthy of rank beside the saving effected by Pasteur to the silk-worm or to the wine industry of France.

Manitoba and British Columbia have a season too short for the ripening of what were the finest varieties of wheat. The Mendelian clue enabled this new specification to be promptly met and the early ripening quality of an inferior variety was transferred to the variety chosen and these countries are now producing enormous quantities of the finest wheat in the world. A cotton has been produced which combines early growth, by which it escapes the ravages of the boll-weevil, with the long fiber of the finest Sea Island varieties. Corn of almost desired percentage of sugar or starch, within limits, can be produced to order in a few seasons. The percentage of sugar in the sugar beet has been increased. Sheep have been produced combining the excellent mutton qualities of one breed with the hornlessness of another, and with the fine wool qualities of still a third. And so on "from canary birds to draft horses." The illustrations are endless in number, boundless in importance, stupendous in actual dollars and cents value. New races can be built up to meet almost any demand with almost any desired combination of known characters, and these races remain stable. Possibilities in this direction seem to be limited only by our present and rapidly lessening ignorance of the facts of Mendelian heredity; facts to be had for the looking.[18]

The list of demonstrated Mendelizing traits in different organisms now extends into the hundreds and is increasing almost weekly. Thus in guinea-pigs a rough or rosetted coat is dominant over the ordinary smooth coat, a long or angora condition is recessive with the normal short fur. In cattle, the polled or hornless condition is dominant over the horned condition. In man, two-jointed fingers and toes are dominant over normal three-jointed ones; brown eyes are dominant over blue eyes.[24]

It has been suggested that the determination of sex in general depends upon the inheritance of a Mendelian factor differentiating the sexes and there is considerable evidence supporting this idea. Among others, the fact that it is known that in many insects one pair of chromosomes is closely connected with sex, for in the males one pair is either absent or much reduced, but in the female both are present and they are similar. Attempts which have been made to influence the sex of an embryo by altered nutrition of the embryo or of the mother have proved futile. Schenk's system of influencing sex was founded on this fallacy and Russo's method of feeding the mother on lecithin has been found wholly inadequate. Schöner's[35] theory of the alternating functioning of the ovaries according to a two-in-three rhythm of the sexes, and the assumption that the sex is determined before conception and can be predicted by computing the number of menstruations between two conceptions, is false because it fails to take into consideration the fact that the ovum is no more feminine than it is masculine and that the sperm cell too is sexless.[43] It is not the gamete but the zygote that has sex, and the sperm is as likely to be the bearer of the extra Mendelian factor required for femaleness of the zygote as the ovum is to have a double determiner. I am perfectly aware that Minot[26] claims that the ordinary cell is hermaphrodite and that maturation, removing the male element from the ovum and the female element from the sperm, leaves the ovum female and the sperm male, so that the fertilized egg is again hermaphrodite or neuter. But Wilson[9] has pointed out the fatal objection to this view when he gives compelling evidence that male as well as female qualities are transmitted by the egg-cell while the sperm-cell also transmits female qualities.[42]

There is now no doubt that sex has its beginning in gametic differentiation and is determined beyond recall by the nature of the uniting gametes. The phenomena of sex are as sharp and clear cut as those of other Mendelian characters. The curious sex-limited diseases which we shall study in a moment, indicate that the mother transmits to the daughters her dominant quality of femaleness, but to balance this, as it were, she transmits to her sons another quality which her daughters do not receive. Just as in a wreck at sea, when life-boats for only half the

persons aboard are available, if certain ones are saved others must be lost. It is perfectly conceivable that some qualities of the masculine intellect depend upon the existence in the zygote of a double dose of some factor which is repelled by femaleness.

The inevitable corollary obtrudes itself that if the new woman is bent upon achieving the results for which are needed those qualities of intellect which depend upon the existence in the zygote of a double dose of that factor which in her sex is replaced by the factor for femaleness, then, of a certainty, it is not opportunity, or education, or training that will help her. "Her problem is to get the factor on which the quality depends into an ovum that carries also the factor for femaleness. Her saving grace is with the gamete and with the gamete alone."[21]

Maleness and femaleness, then, are probably a pair of Mendelian characters inherited in the manner I have herein described. Male and female zygotes should, therefore, according to Mendel's law, continue to be produced in approximate equality, and inequality of male and female births can result only from greater mortality on the part of one sort of zygote than of the other. Sex, accordingly, is beyond our power to control and will probably always remain so. It is well to know our limitations. We shall then not waste our time in attempting the essentially impossible.[14]

(To be continued.)

THE TEETH AND THEIR RELATION TO THE BODY.*

BY GEORGE H. WRIGHT, D.M.D., BOSTON.

THE title suggests a wide range in a consideration of the teeth and their relation to the human body. We shall consider only a few definite relations that are of special interest to the general practitioner, and assume that my audience is not made up of dentists but of medical men.

THE TONSILS AND OTHER GLANDS.

Fundamentally the teeth are to be considered as any other organ within the body; its anatomy, nerve and blood supply, and associated membranes are subject to the same variations from the normal (indicated in its pathology) as in any osseous or membranous tissue found elsewhere.

The teeth begin their development early in the history of the fetal life—about the second month. Each tooth is evolved as a separate organ, surrounded by a membranous sac from the primitive ectodermal and mesodermal cells, which become highly specialized for the function of producing enamel, dentine and the pulp ultimately found within the tooth. The enamel comprising the crown is produced by cells differentiated for the purpose. These cells receive, through the intermediary of a dental sac (which is analogous to the placenta), all the materials necessary for the production of calco-globulin, which later calcifies and becomes enamel prisms. Coincident with this enamel formation, other cells—odontoblasts—produce the larger body of the tooth—the dentine. So the tooth with its membranes, as a whole, requires an organ by itself for its elaboration. And it is the final disposition of what remains of this organ, together with such bone and connective tissue immediately outside the tooth, as well as the roots of the first temporary teeth, that are so frequently involved in tonsillar enlargements, cervical adenitis, lymphatic absorption and a variety of reflex disturbances manifested in the child and in the adult.

Five years ago we observed four distinct periods in the life of a growing child when the tonsils became enlarged coincident with the final eruption of the teeth; and at such times these tonsils, although enlarged, were in no manner diseased, inflamed or suppurative. And the significant fact remains, to date, that where these tonsils have been left alone (except in a few instances where prophylactic cleansing of the crypts has been advised) they are no longer enlarged or in any manner troublesome. These periods of tonsillar enlargement appear approximately at 2 years of age, 6 years, 12 years and 18 years, and this coincides with the eruption of four groups of molars. We are very confident in our belief that the tonsil (which is histologically a lymphoid gland irrespective of its possible other functions) is sharing in the work of taking care of the normal physiological debris due to the elaboration and eruption of 48 teeth and their adjacent membranes. The faucial tonsil and normal adenoid tissue upon the side nearest to the erupting tooth may become considerably enlarged through the influence of the lymphatically absorbed waste. Nature has undoubtedly developed and placed these lymphoid organs for a useful purpose during this structural upbuilding; and it is conceivable that if we have present a number of decayed and abscessed temporary teeth, whose surrounding membranes are in close proximity to the underlying membranes of the developing permanent teeth, we shall get micro-organic infection and absorption of toxins through continuity of tissue, particularly so, when the temporary roots are in process of active absorption, and in consequence, we might readily find an infection of the subjacent lymphoid glands even to the tonsil. In this later event we may find a considerable tonsillar enlargement, and possibly a peritonsillar abscess. Under such conditions we must consider the tonsil as we would any other diseased organ requiring treatment and finally its proper surgical removal if necessary.

But I do want to emphasize the fact that the tonsils are very often removed when they are merely filling the function for which they were apparently intended. In nearly 300 cases, where

* Read at the annual meeting of The Massachusetts Medical Society, June 12, 1912.

the tonsils were enlarged, the enlargement coincided with the second, third or fourth periods of tooth eruption. Some teeth showed the point of the cusp had cut through the gum; others did not appear for three or four months. In no case did we find excessive enlargement of the tonsil or suppuration, but the patients were sent to us by physicians or social workers, or came on their own initiative. Another aspect of the problem is illustrated by a boy, aged eleven, who had his tonsils extirpated three years before. He came to us for treatment for glandular enlargements in the neck. The tonsillar gland was markedly enlarged, other glands were enlarged, and the trouble was distributed down to the border of the clavicle. There was no history of tuberculosis in the family. The teeth of the third period, or twelve-year molars, were in process of eruption. Another boy, aged 12½ years, whose four molars had just erupted, had his tonsils removed; they were only slightly enlarged according to his history card. I did not see him before the operation. We were obliged to keep him in the hospital ward four days on account of post-operative hemorrhage. A girl of 17 had tonsil on right side slightly enlarged; left tonsil was normal. The right tonsil was later removed. Three months later the patient returned and showed enlarged tonsillar gland the size of a hen's egg. Examination of the mouth revealed the fact that the lower third molar was cutting through the gums—the fourth period. The remnant of a root of lower six-year molar was also found; this was extracted, but the operation on the glands was deferred. One month later the patient reported for examination. We found the gland reduced to normal, no pain or swelling of any kind and the tooth had erupted.

SUMMARY.

Tonsils are lymphoid structures.

Diseased teeth may be source of infection and enlargement of glands and tonsils. Tonsils become enlarged without infection or disease whenever (*a*) the first group of temporary molars at 2 years of age are in process of eruption; (*b*) at 6 years when the first permanent molars and at 12 years when the second molars are active in eruption.

General practitioners of medicine, district nurses and physical examiners of school children in particular should learn the years when to expect these teeth.

Where there has been no previous history of recurrent tonsillitis and the tonsils are simply enlarged, the periodicity of the eruption of teeth should be considered.

TEETH AND DEFORMITIES OF THE NOSE AND FACE.

The superior maxillary is the largest bone of the face, and the most important in our problem of maxillary adjustment. It forms the roof of the mouth, enters into the formation of the floor of the orbit and, with the hollowing out of its main body, it forms the antrum. It has four processes: the nasal, malar, alveolar and palate; and nine articulations, which means as many possibilities for maladjustment: the nasal, lacrymal, frontal, ethmoidal, malar, sphenoidal, palatal, vomer and, most important, the lower turbinal. This enumeration will indicate in part the importance of this fundamental bone,—the superior maxillary,—and what an inevitable influence it must have upon those parts immediately contiguous. It is not our purpose to deal with all the possible and remote influences upon these adjacent structures when expanding the arch, but we shall consider more particularly the relation of the lower turbinal to the superior maxillary, because in that turbinal we deal with the functions of respiration, ventilation and drainage, and show how the lack of these functions may be modified by the readjustment of the turbinal to its normal position through arch expansion. If you will follow with me a more detailed study of the sutures, you will readily appreciate what takes place when we readjust the superior maxillary bone and arch; for it is only with this special knowledge in mind that we can account for the marked improvement in nasal breathing that follows the proper readjustment of the teeth and maxillary bones. It will serve also to emphasize the necessity for this special knowledge by the profession at large. It is no light matter to blindly apply force to teeth in an attempt to regulate them without considering seriously the anatomical relations involved.

Let us note particularly the transverse facial suture. This connects the frontal bone with the malar, sphenoid, ethmoid, lacrymal, superior maxillar, and nasal directly across the front of the face, from the external angular process on one side, where the malar and frontal articulate, to the region opposite. Let us consider briefly the structure of these sutures. Where the adjacent margins of bones are in close contact, we find a thin layer of fibrous membrane, called a sutural ligament. In some places a thin layer of cartilage is interposed instead. When ossified it is no longer a true suture, although its former outline may be defined. Unossified, the suture has between its parts a fibrous connective tissue, capable of having its fibres stretched, with regenerated growth, and subsequent ossification. And because this is so, the orthodontist is capable of assisting nature in the normal lines of growth, thereby obtaining such remarkable results as are shown in the enlarged arch. Incisive or premaxillary sutures in the young are seen sometimes up to the age of six years, that is, the intermembranous tissue laterally does not ossify until then, although it may remain free in the median line for some years later. We can appreciate the ease with which these sutures may be opened in the young developing body and the consequent care and intelligent application of force that must be applied in order not to outrun nature in the extent of space to be gained, or to apply force when the organism, as a whole, is



Fig. 1. Observe teeth within bony crypts, also space surrounding unerupted molar from which the membranous dental sac has been removed. (Warren Museum, Harvard Medical School.)

not active in development. We must also bear in mind that under the influence of the stimulation of expanding the arch within normal physiological limits, we obtain in addition to sutural growth some interstitial growth in the alveolar process between the teeth. And ultimately, what surer guidance can we have than being led by what we know, to date, of the normal adjustment in lines of growth of the teeth and normal occlusion. If we bring those units into harmony, provide for their continuance through normal interlocking and daily use through mastication, nature will take care of the adjacent superstructure and subsequent ossification of the sutures as the only permanent retainer. The structural growth of a face may be developed along normal lines in its lateral halves, and the middle third of the face exhibit only a partial development. To be more explicit, the lateral halves refer to the superior maxillary bones. The middle third includes the premaxillary bone, which may be considered part of a central mass and contains the structures of the middle third of the face, as the cartilaginous triangle of the nasal septum, the ethmoid plate and the nasal bones up to their articulation with the frontal. When we find this lack of development in the middle third in the adult, it bears the same relation in its extent of growth to that of the child, clearly indicating the arrested development. The incisors in such a premaxillary bone do not of necessity share in this lack of growth, but appear to develop as an independent center. From the foregoing statement it is obvious that any attempt to reconstruct this middle structural mass through application of orthodontic apparatus would be ill-advised. The arbitrary application of mechanical force to the teeth must be made with reference to changes which ultimately occur in the structures beyond the teeth. Whenever this is done without such consideration, new and complicated malformations may be induced and become evil in effect. We may, however, arrest further tendency to malformations and assist by giving direction for true lines of growth until such time as the organization, as a whole, shall become active in further development.

Ballenger in an article entitled, "The Vicious Circle of the Nose," states the well-known law, —"Any cavity lined with mucous membrane is predisposed to infection and inflammation when its drainage and ventilation is impaired." This law obviously includes any condition, whether anatomical or pathological, causing obstruction to the normal flow of the secretions. Furthermore, it is equally apparent that if the obstruction to drainage and ventilation is removed, the predisposition to infection and inflammation will also disappear. We have frequently found this cavity of the nose constricted, its ventilation and drainage impaired, at the same time that we have found a corresponding deformity within the oral cavity with its narrowed, contracted and high arch, and malposition of the teeth. We know too well what the picture of the vicious circle of the oral cavity is: imperfect alignment of the teeth with attendant ugliness, loss of mastication, caries, disease, crowding of the tongue, and unsanitary condition of the whole. We shall add the further observation that whenever we find the teeth out of harmony with each other and the malocclusion has been maintained for some time, we shall invariably find from one to four deformities of the nose that are coincident with the dental abnormality. We must not be understood as implying in this statement that all

nasal obstructions and deformities have a dental origin; many of them are due to other factors than the teeth. For example, there are certain pathological conditions that are immediately responsible, also factors of inheritance, lack of development of the parts or overdevelopment. Traumatism is also responsible sometimes for nasal obstructions, also unstable nervous adjustment, etc. Having ruled out these possibilities we find first one or both sides of the nares collapsed when the premaxillary portion of the superior maxillary bones and its contained incisors are not in proper position or development. This collapse of the nares means that the supports for the cartilage and the musculature of the nose are not in tone and do not function. Secondly, a contracted maxillary arch places the lower turbinals either too near the floor of the nose or too near the septum. This is more particularly in evidence when the bicuspids and first molars are malocclueded. Thirdly, an extended contraction of the maxillary arch, where the roof approximates the Gothic type, induces a marked thickening along the groove which contains the base of the septum and vomer.

In endeavoring to restore function to the superior maxillary bone through the normal adjustment of the parts, it is important to note its histological structure. The lining membrane of the outer vestibule of the nose is practically continuous with the skin; here we find a stratified epithelium through which pass the hairs called vibrissae. Entering the nasal cavity beyond the nares we find it lined with a mucous membrane; here we find a ciliated epithelium extending along the floor and side walls of the nose (the antral walls) back to the naso-pharynx. Beneath the ciliated cells and membrane of the floor of the nose are numerous lymphatic glands. So the respiratory region proper is considered as along this tract, extending upward to the superior border of the lower turbinal, including actively the middle meatus, where we begin to exercise our olfactory sense. It must be borne in mind that the entire group of sinuses of the head—*i.e.* the antral, frontal, ethmoid and sphenoidal sinuses—take part in respiration. The lower meatus (the antral wall below the lower turbinal) is a region of the utmost importance in our study. The lining membrane covering the bony wall in this region is composed of a very thin tunica propria, whose epithelium is exceedingly attenuated; the glands are small and few in number. We have selected this particular region for our comparative measurements because it offers the nearest points of contact with the bones of the wall of the superior maxilla in our process of expansion and readjustment. Furthermore, the lower turbinal is attached to this same antral wall, and must, of necessity, share in the readjustment.

With this detailed statement in mind we are in a position to judge of the relative merits and importance of measurements which shall be made within the nose in conjunction with readjustment of the maxillary bone. Obviously the rapidly and highly fluctuating and irregular turbinals are unfit for our purpose, and only a region which actually moves outward in the process of arch expansion, and where the character of the membrane is thin and near the bone and free from variations in the healthy state, is at all reliable and worthy of consideration. We have found that region to be in the lower meatus below the turbinal already described.

I have here an instrument through the use of which I can get three measurements: horizontal, lateral and height, and there are scales on which each of these measurements are recorded. To prepare the region of the lower meatus for the introduction of finders on the measuring instrument, we introduce into each nostril a piece of gauze saturated in a 4 per cent. cocain and adrenalin 1-1000 solution. After five minutes the gauze is removed, and the lower turbinals are examined, distending the nares with a Myles speculum. An applicator is passed under the lower turbinate body until the lower meatus is found. If this is difficult on account of the lower turbinal being too closely approximate to the antral wall, a flexible finder of a predetermined length is fitted into the measuring instrument. We are then ready to record the first measurement before any expansion apparatus has been applied for readjusting the maxillary arch. The patient holds the horizontal standard lightly between the teeth to help in steadying the instrument. This in no way affects the accuracy of the measurements because the outside measurements of the length of the face control that. The measurement is to be only comparative for the individual. A point is found between the central incisors at the gingival margin, another on the frontal bone between the frontal sinuses and the facial length is recorded. The finders for the antral wall are next introduced, their depth within the nose antero-posteriorly is recorded, as well as the greatest horizontal width for that depth, and the angle of inclination of the finders, which is shown marked off in degrees on a quadrant. These records are made for depths of one or two centimeters within the nose, or any part thereof. Experience, however, has demonstrated that the greatest deformities exist in the region of the anterior third of the lower turbinals and lower meatus. The finders on the measuring instrument are quickly removed and sterilized, and the whole instrument is easily cleaned.

A description of a few of the many practical cases which we have examined, measured and corrected, and finally examined and measured again, will indicate without too much repetition the value of this work and incidentally suggest a wider field for future study.

The first case I will mention was that of a boy of 12 years. The anterior upper incisors were in malocclusion; the laterals in lingual occlusion to lower teeth and irrevocably locked inside the arch. The premaxillary bone was small but the

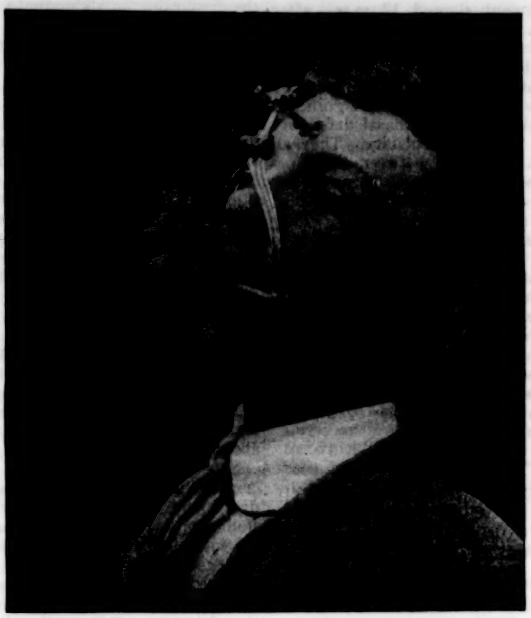


FIG. 2. Author's instrument for measuring internasal breathing space before and after readjustment of the maxillary arch.

teeth in it were well developed. Both anterior nares were collapsed and acted as valves with each inspiration of air. The upper arch was contracted in the region of the bicuspids. The internal nose showed approximation of the lower turbinals to the septum, which deviated slightly above and below, making a double curve. There were no spurs or thickenings, or otherwise marked diseased conditions of the mucous membrane, except a slight redness and swelling. The boy could not breathe freely through the nose; his general condition was poor, his color anemic and he altogether lacked stamina; he was subject to frequent nasal colds. The distance between the antral walls below the lower turbinals before regulating the teeth was 10 m.m., and after regulating 16 m.m.; between the first bicuspids before regulating the distance was 23 m.m.; after regulating 33 m.m. After readjustment and obtaining good occlusion, the nose showed the nares in good tone as compared with the former collapsed condition; the deviations of the septum was gone; and the turbinals were in relatively good position away from the septum and slightly raised from the floor of the nose, and there was no difficulty in nasal respiration.

The second case was that of a man of 27 years. This patient presented a long and narrow face, a high, contracted and V-shaped arch, and teeth in badly decayed condition. He was a mouth-breather and subject to head colds, and was below the normal in weight. The insurance companies had refused him insurance, considering him a bad risk. He was sent to me by a rhinologist, who stated that he hesitated to operate on the lower turbinals where the dental deformity was so marked. For a period of three months we stretched the maxillary sutures; at the end of the time the incisors had moved apart, and the patient reported freedom in nasal breathing. It took fifteen months more to adjust his teeth, during which time the patient's health improved in every way. The measurements between the antral walls before adjustment were 8½ m.m.; after adjustment, 15 m.m.

Another case is that of a girl of 11 years. The abnormality of the teeth was not serious; there was a slight contraction in the region of the bicuspids; the arch was tending to the Gothic type. The turbinals on both sides were near the floor of the nose; breathing was more or less interfered with and the patient was subject to nasal and head colds. We were impressed with the idea that with a little attention to tooth regulation, by simply keeping the patient under observation and gently applying force in maxillary expansion to lead the arch out to normal, nature would complete the growth and soon establish normal conditions within the mouth as well as in the nose. The measurements within the

nose before treatment showed 12 m.m., after treatment 14½ m.m. The turbinals were lifted from the floor of the nose, the floor assumed a declination of 2 degrees and good nasal breathing space was established.

In all the cases we might site the significant facts are these: All show some nasal deformity coincident with a dental irregularity. They all show a change in the width between the superior maxillary bones, measured between the antral walls below the turbinates, as recorded before and after regulation respectively. They all show improvement, some slight and others to a marked degree, in intranasal respiration after maxillary readjustment, and in consequence the patients enjoy a better nasal sanitation, ventilation and drainage, better nasal respiration, and greater freedom from head colds. The factor of restored facial symmetry must not be lost sight of, although, personally, I am more inclined to feel that, after the normal function of the mouth and nose has been restored, all other beauty and harmony will inevitably follow.

THE TREATMENT OF PULMONARY TUBERCULOSIS BY ARTIFICIAL PNEUMOTHORAX, ACCORDING TO THE METHOD OF FORLANINI.

WITH A REPORT OF TWENTY-ONE CASES.

BY GERARDO M. BALBONI, M.D., BOSTON.

(*Continued from page 761.*)

COMPLICATIONS DURING AND AFTER INTRODUCTION OF NITROGEN GAS.

It is well to warn patients when beginning treatment of the following complications, so that if they should appear they will not be unduly alarmed:

Massive injections or rapid introductions of gas will cause dyspnea and collapse (Case 12), due to displacement of the mediastinum from pressure on the other lung and heart. Pressure symptoms may be slight at the time of introduction to become marked in a few hours. (Cases 5-19.)

The rapid evacuation of the contents of cavities may cause infection spreading into the other lung. (Forlanini, Schmidt, Brauer.)

More or less pain, especially when there are adhesions and these are being stretched by the pressure of the gas.

The possibility of effusions forming from pleural irritation—the serous form (Brauer, four cases) and the rarely purulent form.

The appearance of blood in the sputum, due to puncture of the lung (Cases 10-11-12-16), appeared immediately but was only temporary. In bilateral cases blood may appear in the sputum where the lung has not been punctured. (Cases 5-12-16 and 20.) The blood made its appearance from 12 to 24 hours after the injection of nitrogen. Gastric disturbances due to pressure of the diaphragm on abdominal viscera. (Cases 9-10-12.)

A temporary rise in temperature, chills and night sweats probably due to the absorption of a large quantity of toxins.

Emphysema.—During the injection, if the needle is moved outward for any reason or if during the extraction of the needle, unless the valve connecting with the nitrogen gas is closed, gas may pass from the pleural cavity and escape into adjacent tissue of the thoracic wall. Sometimes when the pneumothorax has been established and the gas is at a high pressure, gas may escape through the puncture from the pleural cavity. This accident is most probable if the puncture is of a large caliber. The predominating causes of emphysema are:

(*a*) Large wound.
(*b*) Lack of tensity of the tissues.
(*c*) Excessive thinness of the subject.
(*d*) High pressure of the pneumothorax.

An emphysema necessarily compels one to refrain from further treatment until it has been absorbed.

Subcutaneous Emphysema. — Subcutaneous emphysema is easily distinguished from normal prominence of the region by tactile and by stethoscopic fremitus. As soon as it is noticed the injection should be stopped.

It causes neither pain nor serious disturbances. A sensation of fullness of the affected part is practically the only subjective symptom. Case 13 (a very thin, weak subject) developed a slight subcutaneous emphysema during introduction of nitrogen. The application of deep pressure over the puncture with a five cent piece wrapped in cotton, immediately stopped the escape of gas. The patient felt no disturbance whatever from the tumefaction.

Cases 9-20 developed a subcutaneous emphysema during the extraction of the needle without producing any discomfort. In all these cases it was rapidly absorbed.

Deep Emphysema.—It is more difficult to recognize deep emphysema objectively than the subcutaneous. Only as an exception is it prominently apparent in a particular spot. There is an absence of tactile fremitus. A distinct stethoscopic crepitus exists. Percussion gives a smothered sound but tympanitic in character, high pitched and very variable over a short period of time.

In four cases pressure symptoms developed, accompanied by a feeling of tightness about the chest and neck, sore throat, difficulty in swallowing and breathing, and a changed voice which was characterized by a nasal twang and pains across the chest. Spontaneous pains are more frequent and are markedly felt. These pains will last for a few days, gradually disappearing and diminishing in intensity. Two other patients, Cases 2 and 10, developed these latter symptoms. The patients were rather alarmed, more on account of the changed voice and the constriction about the throat than on account of

the pains. In fact Case 5 left off treatment after that and did not return again for several months. Case 11 sent for me in the evening, being greatly worried on account of the feeling of tension about the neck and the slightly changed voice with a nasal twang. These symptoms disappeared within three days in all cases.

A large quantity of nitrogen in these four cases was introduced at a high pressure.

Pleural Reflex. Eclampsic Pleurisy.—The pleural reflex has been carefully studied by French clinicians, especially M. Roch and V. Cardier (Lyon). There are in the literature reports of sudden deaths by merely puncturing the pleura. The phenomenon consists of epileptiform attacks with loss of consciousness or else attacks of paralysis; as a rule these symptoms disappear entirely or may leave a trace of paralysis for a short time.

Experiments on animals with chemical substances have shown that by anesthetizing the pleura this reflex can be prevented. Forlanini cites a case where as soon as the needle had punctured the pleura and before the introduction of nitrogen, the patient became pale, there was cloudiness of mind and a heavy sensation in the arm, so that he was unable to raise it, but all these symptoms disappeared in the course of half an hour. Patients are apt to have recurrence of the reflex at subsequent punctures if they have shown it once. Forlanini, by using stovaine as a local anesthetic before injecting prevented the coming on of the reflex. But this author does not as a routine make use of a local anesthetic. Brauer recommends the subcutaneous injection of ½ cgr. morphia about one-half hour before puncturing the pleura.

Robinson has clearly shown that the use of a local anesthetic (preferably novocain) in all operative procedures on the chest prevents the reflex. The pleural reflex has never been met in any of these cases as the technic recommended by Robinson has been followed.

For details regarding the pleural reflex the reader is referred to the works of M. Roch, V. Cordier and Forlanini. In general it may be said that the predisposing causes are:

(*a*) General weakened condition.

(*b*) Excitability and weakness of nervous system.

(*c*) Fear of the injection.

(*d*) The menstrual period.

Gas Embolism.—Gas embolism ought to be entirely avoided. It is possible that on account of pain or a paroxysm of coughing or a sneeze the needle may involuntarily be thrust with a jerk a certain depth into the lung (as in a case of this sort in Brauer's hands). It may enter a blood vessel and before the nitrogen gas can be shut off or the needle pulled out, cause a fatal gas embolism.

During Forlanini's long experience with the treatment it has happened twice. This was when he began the treatment and the accident was the cause of his inventing a safety syringe which he thereafter used.

There are reports of cases of gas embolism ending fatally in the French, German, Italian and American literature. It appears that in all these cases the accident occurred not at a first introduction but at subsequent ones, a fact well worth remembering.

Three cases were reported to Brauer by other operators. In one case a collapse took place which was quickly followed by death. In the other two cases after rallying from the collapse a hemiplegia, cardiac weakness and unconsciousness developed, and the symptoms continued until death ensued.

Two of these cases came to autopsy and clearly showed gas embolism. In one case the needle had been introduced into the lung tissue and had produced a tear in the respiring lung the size of a ten pfennig piece.

It seems evident that these fatal cases would not have happened if, as Forlanini insists, the safety syringe had first been used or the manometer which Saugman added to the apparatus had been brought into play.

"No gas should ever be allowed to pass into the pleural cavity unless marked respiratory oscillations have been obtained. Only then can the operator be sure of having entered the pleural cavity."

In cases where a free pleura exists and mobility of lung margin is demonstrable from the physical examination, there is no danger of gas embolism from needle puncture. The danger of gas embolism may be present in a relatively small number of cases but these can previously be diagnosticated as "dangerous" or at least "suspected."

Such cases are those in which,

(*a*) The pleura is not normal.

(*b*) The pleural cavity is obliterated.

(*c*) Ths adhesions and pleuritic inflammatory neoformation exist. The older and larger these neoformations are the greater and more immminent is the danger on account of the blood vessels they contain.

(*d*) The pneumothorax consists of a thin stratum of gas.

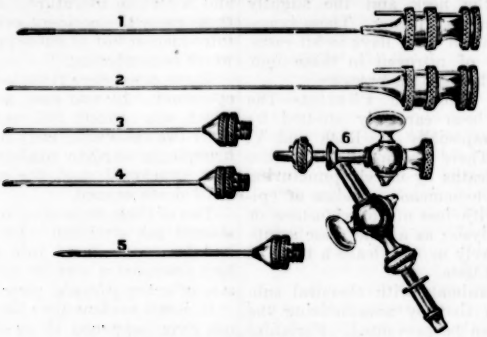
(e) Large bands of pleura containing lung tissue exist, which are stretched across the wall of the thorax and compressed lung to the opposite side crossing the cavity of the pneumothorax.—Forlanini.

PLEURAL EFFUSION.

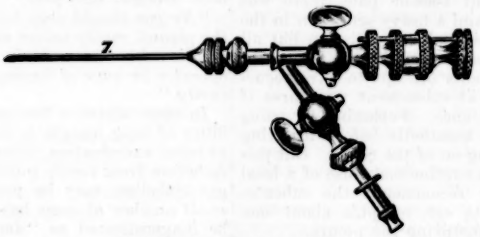
In the course of treatment a pleural effusion may make its appearance, usually after the pneumothorax is well established. Murphy was the first to attempt an explanation, theoretically suggesting a pleural infection. Dumarest thinks it is due to a secondary infection following trauma to the lung. Schmidt assigns every pleural infection to the technic and adds that

BALBONI'S PNEUMOTHORAX NEEDLE.

Advantages of this needle are obvious. There are three different sizes of needles for use. Extra sizes may be had to suit operator's convenience.



Showing the various parts of the needle.
1 is stilette for needles 4 and 5; 2 is stilette for needle 3.



Showing the complete needle.

he has never observed a pleural effusion in any of his cases. Persh calls attention to the fact that the infection may be carried in by the needle from a minute particle of cuticle, as it may be impossible to thoroughly sterilize the operative field. Forlanini lays stress on the microbic origin, *i.e.* pathogenic germs passing from lung to pleura; the distension the pleura undergoes and its contact with a foreign body, nitrogen. Graetz thinks the slowing of the lymphatic circulation is an important factor. Brauns in forty cases treated has not had a pleural effusion. He attributes this to the great care taken in thoroughly sterilizing the instruments, nitrogen, and operative field. In none of the cases of this series has an exudate been noted.

The existing tuberculous condition is to my mind a primary cause favored by the other factors already mentioned. Exposure to cold must also be considered as a factor. Infection from the outside ought to be excluded by a rigorous technique, and after the first introduction of nitrogen injury to the lung should be reduced to a minimum.

Pennato, Fagioli, Brauer and Spengler have demonstrated the tuberculous nature of some of the exudates.

RESULTS—IMMEDIATE AND REMOTE.

The results are in proportion to the degree and duration of the collapse obtained. The symptomatic relief in many cases is soon evident. The effect on the temperature is remarkable especially if that portion of lung which is the cause of the temperature becomes compressed. In Case 14, on the third day after the first injection of nitrogen gas, the temperature was lowered from 102 degrees to 99 degrees. The temperature stayed down, reaching normal on the sixth day. The night sweats also disappeared. In Cases 1-5-7, soon after instituting treatment, the temperature came to normal and there was also a disappearance of the night sweats. This is ascribed to the rest given the organ and to the lymph stasis, causing a diminution in the absorption of toxic products.

The sputum was at first increased and became easier to expel; it gradually diminished and in some cases disappeared entirely and with its

disappearance there was a marked improvement in the cough; where it was abundant at first, it became less troublesome and in some cases disappeared entirely. Most of the cases have no cough to speak of and they raise very little sputum and that in the morning.

As the sputum and cough diminished, there was an improvement in the general condition of the patients. As a rule all the patients gained in weight. Case 11, in particular, has gained twenty pounds under treatment.

Three cases, 8-15-16, lost weight at first but soon regained the loss and have remained stationary. Case 15 is gaining now. The only case that has lost ground is Case 10; an explanation of this is given elsewhere.

The only case that was not helped was case 18, an acute bilateral one with hemorrhage.

Three of the cases show no tubercle bacilli in the sputum, are in excellent physical condition and are attending to their ordinary occupations.

Definite clinical recoveries have been reported by Forlanini, Brauer and others. Recovery is obtained after a variable period and is in proportion to the extent of the lesions, but generally in not less than a year. It may be well to continue the treatment indefinitely. The oldest and best results are those of Forlanini. Other authors, especially Lemke, Brauer and Spengler, Saugman, Wellmann, and Dumarest, have important statistics, which altogether comprise several hundred cases. Cases of this series, 1-3-4, show no signs of disease now and are enjoying good health.

DISADVANTAGES.

Up to now we have considered the advantages of an artificial pneumothorax. It also becomes necessary to consider its disadvantages.

Having abolished the function of an entire lung, the noncompressed lung must do the work of both. In general, individuals affected with tuberculosis are readily predisposed to infection and may easily succumb to bronchial disease. If, for instance, a patient with an artificial pneumothorax becomes ill of pneumonia or bronchitis of noncompressed lung, what will happen? The prognosis must necessarily be grave. Touissant, in his Thèse de Paris, 1880, says, "Any infection of expanded lung that from the time of the formation of a pneumothorax has the responsibility of maintaining life is an accident of the greatest gravity." One of Forlanini's cases successfully went through a serious case of bronchitis of noncompressed lung. Case 1 of this series recovered from a bronchitis of three weeks' duration this last winter. Case 14, also of this series, had a bronchitis, due to pressure from the mediastinum, that cleared up in a week. But these cases, though they show what a patient can successfully pass through, do not in the least lessen the danger. It is possible that the increased function of the noncompressed lung may give an increased amount of immunity against infections of that lung.

The heart has to do more work and, besides being displaced by the pneumothorax or by the retraction of the lung, encounters increased resistance in the lesser circulation in proportion to the suppressed circulatory area on account of which the right ventricle must double its work. It is certainly a treatment that is not to be undertaken in subjects with any cardiac or renal disease.

The patient practically binds himself to the physician for an indefinite period, and it always remains an operative procedure with the possibility of an accident.

INDICATIONS.

In any case the treatment by artificial pneumothorax ought only be resorted to after having given a fair trial to other well-known forms of treatment. If then the patient's condition does not improve or show signs of extension or the patient's condition immediately becomes worse it is to be undertaken at once.

CONTRAINDICATIONS.

Union of the leaves of the pleura and extensive pleural adhesions.

The acute bilateral forms of phthisis.

Grave lesions in other organs, as cardiac or renal.

Extensive destruction of pulmonary tissue in the lung which is in better condition.

Emphysema and splanchnoptosis.

PROVISIONAL GROUPING OF THE CASES FROM THE LITERATURE AND FROM THIS SERIES WHERE ARTIFICIAL PNEUMOTHORAX HAS PROVED OF VALUE.

Group 1.

Unilateral Cases.—The unilateral cases with free pleura, no matter how far advanced, provided there are no complicating diseases, represent the ideal type for treatment.

Group 2.

Advanced Bilateral Cases.—Treatment may be attempted in many advanced bilateral cases, because the patient has everything to gain and has nothing to lose. In cases where the lesion in the other lung is primary and circumscribed, recovery is still possible, or it may be arrested, or the prolongation of a state of well-being may result. But even if the lesions are advanced, good results may be obtained and exceptionally unexpected amelioration may take place. In almost every case you may expect symptomatic relief, which in the phthisical, when every other means used has failed, represents a benefit to the patient.

Group 3.

Exthrathoracic Tuberculosis, such as laryngeal and intestinal tuberculosis, do not contra-

indicate in themselves the pneumothorax. When these lesions are secondary to the lung, the suppression of the tuberculous lung may favorably influence their course. There are reports of recovery of tuberculosis of the larynx. My experience has been limited to Cases 6 and 13, which were very advanced bilateral cases and in which treatment was attempted as *ultima spes salutis*. They were made better for a while, but finally succumbed to the throat lesions.

GROUP 4.

Pleural Adhesions.—This represents a group of cases extremely difficult to treat, but which are not by any means hopeless; if you can even partially immobilize the lung, you have gained something. It is possible to inject gas in various places and thus form multiple sacks of gas, and these compress the lung. Of course a much higher pressure has to be used that may not be tolerated by the patient, and, besides, the nitrogen gas will be absorbed much more quickly, so that frequent replenishments will be necessary. Treatment will be long, tedious, uncertain and, at times, discouraging. Progress will be slow, and results will be partial. If a substance could be injected into the adhesion that would dissolve them, that would greatly facilitate matters, but a substance that dissolves adhesions must also dissolve other tissues. Holmgren has suggested that the insufflations of gas in case of pleural adhesions be preceded by the introduction of physiological salt solution, so as to stretch or loosen these.

GROUP 5.

Hemoptysis.—If the hemorrhage is from one lung and a reasonable portion of the other lung is sound, enough nitrogen gas in injected to immobilize the lung, and the hemorrhage will be controlled. Cases 5-11-14 illustrate this well. Case 14 had been under the ordinary forms of medical treatment for sixteen days, without proper controlling of the hemorrhage. Once the lung had been immobilized, there was no more bleeding and recovery was remarkedly rapid.

GROUP 6.

Diseases Other Than Phthisis.—Treatment may be attempted in bronchiectasis and lung abscess. In other diseases independent of phthisis, Forlanini and Wellman have each treated a case of phthisis that had diabetes mellitus, with satisfactory results as to the lung condition, though the glycosuria remained unchanged.

GROUP 7.

Incipient Cases.—Shall artificial pneumothorax be attempted in the incipient cases?

So far as I know only in advanced and moderately advanced cases has it been used by others. One case of this series is an incipient case. In this instance the results have justified the treatment.

CONCLUSIONS.

The establishing and the maintaining of an artificial pneumothorax is not an indifferent operative procedure, but by closely following the technic here described does not present any particular dangers. Nevertheless it is not a treatment for the general practitioner. This method of treatment is not as a rule to be adopted in the early cases, neither should it be the only treatment adopted in the serious cases.

The eighteen months' experience I have had in the treatment of pulmonary tuberculosis in its different stages have convinced me of its place in the treatment of this disease.

The consensus of opinion among clinicians who have closely watched the effects of Forlanini's method is favorable. In fact, considering that in many cases, as Brauer says, the treatment was a last resort, the results are very encouraging. The method of Forlanini, namely, the production of an artificial pneumothorax in phthisis, aims directly to eliminate from the lung the destructive and tuberculosis process. It has steadily gained ground in the last few years, thanks to the continued work of Forlanini and Brauer. Their faithful labors and gratifying success have induced others all over the world to adopt it.

Any one who has had any experience whatever with present methods of treatment for pulmonary tuberculosis must feel a moral obligation to try every new method that promises any degree of success at all, and it becomes a duty to do so when a method of treatment is presented by which good results have been obtained in advanced cases of phthisis.

It is to be hoped that with the necessary wisdom, the method will be applied on a larger scale and earlier in cases in which the spontaneous evolution shows a progressive and destructive tendency. Phthisiology is not so rich in resources as to justify overlooking a method of treatment that has given such good results.

(To be continued.)

Clinical Department

A STUDY OF THE BLOOD IN A CASE OF SEVERE HEMORRHAGE.

BY J. EARLE ASH, M.D., BOSTON,
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(From the Laboratory of the State Hospital for the Insane, Norristown, Pennsylvania.)

THE opportunities for studying the blood in the human subject after severe uncomplicated hemorrhage are not very frequent, hence the report of this case:

The patient, a young adult woman suffering from a functional psychosis, was seized suddenly with pain in the epigastrium and vomiting. There appeared at the same time a vaginal discharge of thick, brown, gelatinous mucus. In about twelve hours the pain became more generalized over the abdomen and there was considerable distension.

The patient was prostrated, the pulse small and rapid and a marked pallor developed, the mucous membranes appearing practically bloodless. There was no elevation of the temperature, the abdomen was not rigid and only a slight general tenderness could be elicted. In spite of a history which would seem to discredit the existence of pregnancy, the tentative diagnosis of ruptured ectopic gestation was made. Dr. A. C. Wood opened the abdomen about twenty-four hours after the onset of the symptoms, removed a very large quantity of clotted blood and the right tube which was found to contain a ruptured gestation sac. Histological examination of the sac showed chorionic villi. The abdomen was closed without drainage and the patient made an uneventful recovery. Immediately following the operation she received 1.5 litres of normal salt solution by bowel and similarly about a litre on each of the following two days. The amount of hemorrhage could not be measured accurately, but including that necessarily occurring during the operation, the total loss was considerably over a litre.

Just before operation, about twenty-four hours after the apparent onset of hemorrhage, the leucocytes numbered 40,000. Beginning eighteen hours after the operation, a series of examinations was made, from the results of which the accompanying table was prepared.

A leucocytosis following acute hemorrhage was described by such older writers as Virchow and Nasse, but experimental investigation of the subject is much more recent.* C. P. Jones,[1] in the course of his experiments on rabbits, found no marked leucocytosis. A much more extensive study of the whole subject of blood changes and regeneration after hemorrhage was made by C. Inagaki.[2] He noted in rabbits a marked diminution in the number of leucocytes for an hour following hemorrhage. After twenty-two hours, however, they had increased to more than twice the normal number. Shridde[3] warns us against adapting too exactly to man the results of animal experimentation when a process so complicated as blood generation is being considered, for there are so many possibilities of variations.

The reports on clinical cases of uncomplicated severe hemorrhage are meagre. Lyon[4] found 41,000 leucocytes one hour after a severe hemorrhage, dropping to 14,000 in five days, followed by a slight increase. Rieder[4] reports 15,000 leucocytes after a severe pulmonary hemorrhage; 32,600 leucocytes and 1,300,000 erythrocytes following hemorrhage from cancer of the uterus; and in a case of hemorrhage due to gastric ulcer, 26,500 white and 1,985,000 red cells. Simon places the maximum leucocytosis from this cause at 30,000, which is rather low. W. P. Coues[5] in reviewing the statistics of 214 cases of extra-uterine pregnancy occurring at the Massachusetts General Hospital found that of the 110 cases in which blood examinations had been made 66.3% had a leucocytosis of 10,000 or over, 32.7% 15,000 or over, 28.1% 16,000 or over, while two cases had counts of 45,000. One count was as low as 2,000. Sepsis was apparent in only one of the cases, so that the leucocytosis seems definitely to have been due to the loss of blood, which was considerable in each case. These counts evidently were the routine examinations made on admission to hospital, and no further reports are recorded to indicate the course of the blood picture.

It is the general experience that the extent of the leucocytosis is in direct proportion to the severity and rapidity of the hemorrhage, usually disappearing or diminishing long before the number of erythrocytes has been restored to normal. This was true in the case under consideration. There have been cases with severe hemorrhage in which the leucocytosis did not appear, but they are exceptional.

The explanations of the leucocytosis are varied. It is assumed that an outpour of lymph in the effort to restore the volume of blood is the chief factor, but as Ewing[4] states, this can scarcely be considered the only one or lymphocytes would be the predominating cell. He suggests that the large increase in the neutrophiles points to a drainage of the bone marrow or an increased productivity on the part of this tissue. But, as he further says, this is not altogether consistent with the fact that the normoblasts, if present at all, do not appear until at least the second or third day, while the leucocytosis is at its maximum in a few hours. He holds as worthy of consideration the old opinion of Samuel, Virchow and others, that the more cohesive neutrophile cells are retained in the vessels in the course of a hemorrhage. After salt solution infusion the high percentage of polynuclears can be referred partly to the chemotactic influence on the marrow. This latter factor does not obtain in the present case, for the highest number was noted about three hours before the enteroclysis.

Shridde[3] has made an extensive study, from a histological standpoint, of blood regeneration in clinical cases of various blood conditions, including hemorrhage. He found in cases of severe post-partum hemorrhage, dying after several weeks, conspicuous changes in the bone marrow. There were areas of myelocytic and myeloblastic elements near those of erythroblasts. The extramedullary areas of blood generation were not present as in the cases of chronic anemia. The task of regeneration after hemorrhage would seem then to fall entirely on the bone marrow. This histological picture will not, of course, explain the sudden onset of leucocytosis, but we must fall back on the two possibilities of concentration of those already present in the bloodstream and the discharge into it of the mature cells that are apparently held in reserve to meet just such an emergency. The rapid diminution in the number of leucocytes usually observed is believed by J. H. Drysdale[6] to be due to the inflow of lymph, but why this does not increase the number of lymphocytes he does not explain.

As to the differential count, it has been the

* Since writing this, an article has appeared by L. S. Milne describing the effect of hemorrhage on the blood picture in cats and rabbits. Jour. Exper. Med., 1912, vol. xvi, p. 825.

general experience that the increase chiefly is in the polymorphonuclear neutrophiles, though an occasional case is reported where increase has been in other varieties.

The reduction in the number of erythrocytes following a hemorrhage is quite clear. It has been the experience of most observers, however, to find numbers of nucleated red cells, except in cases terminating unfavorably. It has even been claimed that a red count below a million with an absence of erythroblasts always proves fatal. The case under consideration constitutes an exception to this rule. A note of interest in this connection, but without direct bearing on the subject is the red count of 143,000 made by Quincke[7] on a case of pernicious anemia, probably the lowest on record.

The restitution of the number of red cells is much slower than the disappearance of the leucocytosis, it usually requiring from sixteen to twenty days for the former to return to the normal quota. The development of hemoglobin does not keep pace with the regeneration of corpuscles, the new red cells being poor in this substance. These facts are illustrated in the accompanying table.

TABLE OF BLOOD EXAMINATIONS.

Before operation (24 hrs. after onset of hemorrhage) = Leucocytes, 40,000.
After operation =

TIME.	HB%	ERYTHRO.	LEUC.	POLYS.	S. L.	L. L.	TRANS.	EOSIN.	BASO.	MYELO.	NUC. RED.
18 hrs.	25	825,000	24,400	92%	6%	1%	—	—	1%	—	—
24 hrs.	25	870,000	18,600	91	8	—	1%	—	—	—	—
2 days	28	1,830,000	15,200	87	11	1	1	—	—	—	—
2½ days	30	1,740,000	14,000	80	16	—	4	—	—	—	—
3 days	28	1,950,000	12,600	81	15	1	3	—	—	—	—
3½ days	30	1,800,000	8,000	72	16	4	6	—	—	2	—
6 days	30	2,550,000	11,800	82	7	3	5	3	—	—	—
2 mos.	75	4,310,000	6,800	58	23.5	8	9	.5	—	1	—

By an analysis of the facts in this case the points to be noted are:—

1. The high leucocytosis, which diminished consistently and touched normal on the fifth day after onset of hemorrhage (fourth day following operation).
2. The actual increase in polymorphonuclear neutrophiles.
3. The absence of eosinophiles.
4. The low percentage of transitional forms in the early counts.
5. The extremely low red count with absence of nucleated red cells.
6. The low percentage of hemoglobin, which persisted for at least several weeks.

I wish gratefully to acknowledge the service of Dr. L. T. Roche of Norristown in assisting with the blood counts.

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A CASE OF FATAL ENDOCARDITIS, DUE TO A CAPSULATED GRAM-STAINING DIPLOCOCCUS, OCCURRING IN CHAINS.

BY WILLIAM H. SMITH, M.D., BOSTON,
AND
ROGER KINNICUTT, M.D., WORCESTER, MASS.

(From the Service of Dr. F. C. Shattuck and the Pathological Laboratory of the Massachusetts General Hospital.)

THE following case of fatal endocarditis seems worthy of publication because of the isolation from the blood during life of an atypical streptococcus and the demonstration in section of the heart valves of this atypical micro-organism showing that it is capsulated:

E. D. V. Age, 20 years. Entered hospital June 29, 1909. *Family History.* Negative. *Past History.* Three weeks of rheumatic fever. Since his last attack, 4 or 5 years ago, his ankles have been enlarged and stiff. *Present Illness.* Except for stiff ankles he considered himself well until 6 months ago. His ankles then began to be painful and he noticed a few reddish spots on his legs. Since that time he has always had a few of these spots, causing him no discomfort. The day before entrance into the hospital these spots on his legs increased markedly in number. He was never short of breath until the day before admission. *Physical Examination.* Heart, apex impulse seen and felt in the 5th space, 11 c.m. to the left of the midsternum and 2 c.m. outside the nipple line. The left border of dullness corresponds. The right border of dullness is 4 c.m. from the midsternum. At the apex the 1st sound is replaced by a loud, blowing murmur, partly pre-systolic, but mainly systolic in time. Subsequent to the 2nd sound is heard a faint diastolic, murmur which increases in strength toward the base, best heard over the 2nd right interspace, becoming loud and musical. Both murmurs are transmitted to the axilla. The pulmonic second is greater than the aortic second and slightly accentuated. The pulses are synchronous, equal, regular, Corrigan in character, with an evanescent thrill. There is a "pistol shot" in the groins and a slight capillary pulse under the finger nail. Distributed over the legs, buttocks, forearms, hands, left upper eye-lid and prepuce are numerous, small hemorrhagic macules and papules varying from 1 m.m. to 3 m.m. in diameter; below the knees these areas are much more numerous and become confluent, espe-

cially about the ankles. The soles and dorsa of both feet are thickly covered with similar hemorrhagic areas.

On admission the temperature was 98.6, pulse 120, respiration 28, Hgb. 40%, red blood count 1,800,000,

intravenously by the members of the Department 565 times to 245 patients; 168 times in Ward G, the Dermatological Ward, and 397 times in the Out-patient Department.

Among those treated in Ward G there were

LAST YEAR.

REPORTED BY E. LAWRENCE OLIVER, M.D., BOSTON.

DURING the year from Nov. 1, 1911, to Nov. 1, 1912, in the Skin Department of the Massachusetts General Hospital, salvarsan has been given

[illegible] the salt solution had been introduced through the needle, the rubber tubing was shifted from the bottle of salt solution to the bottle containing the salvarsan solution, which in turn was drawn up into the syringe and then injected into the vein. This process was re-

general experience that the increase chiefly is in the polymorphonuclear neutrophiles, though an occasional case is reported where increase has been in other varieties.

nection, but without direct bearing on the subject is the red count of 143,000 made by Quincke[7] on a case of pernicious anemia, probably the lowest on record.

ENDOCARDITIS — SMITH AND KINNICUTT

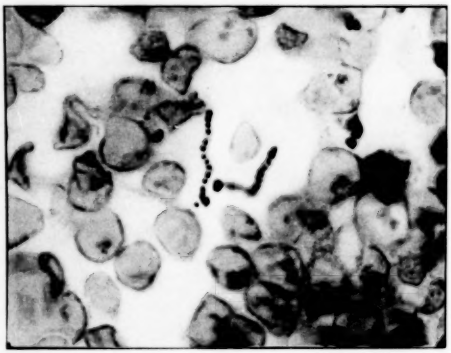


FIG. 1.—Section of valve showing capsulated organisms, x 2000.



FIG. 2.—Section of valve; capsulated chain of cocci. x 2000.



FIG. 3.—Section of valve; portion of capsulated organism only in focus. x 2000.

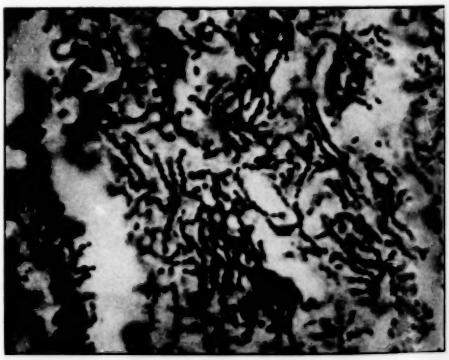


FIG. 4.—Section of valve, showing chain formation, morphology of organisms suggesting pneumococcus. x 2000.

his last attack, 4 or 5 years ago, his ankles have been enlarged and stiff. *Present Illness.* Except for stiff ankles he considered himself well until 6 months ago. His ankles then began to be painful and he noticed a few reddish spots on his legs. Since that time he has always had a few of these spots,

capillary pulse under the finger nail. Distributed over the legs, buttocks, forearms, hands, left upper eye-lid and prepuce are numerous, small hemorrhagic macules and papules varying from 1 m.m. to 3 m.m. in diameter; below the knees these areas are much more numerous and become confluent, espe-

cially about the ankles. The soles and dorsa of both feet are thickly covered with similar hemorrhagic areas.

On admission the temperature was 98.6, pulse 120, respiration 28, Hgb. 40%, red blood count 1,800,000, white count 21,000, blood plate count 186,000. The patient gradually went down hill and died July 9. He ran an irregular temperature, from normal to 101.6, as a rule low in the morning and high at night. His pulse varied from 80 to 120. Blood culture in bouillon taken June 30 and July 2 showed atypical streptococci in pure culture. During his illness in the hospital he developed a marked hematuria and slight paralysis of the muscles of the left side of the face.

At autopsy there was found fibrous endocarditis and ulcerative and polypus endocarditis of the aortic and mitral valves with partial occlusion of the orifices of the coronary arteries, infarcts of the spleen and kidneys, and chronic glomerulonephritis. Cultures on blood serum from the heart's blood and spleen showed the same atypical streptococcus as that obtained from the blood cultures taken before death.

The cultural characteristics of this microorganism are not distinctive and it grows best on blood agar, or some medium containing human blood, very quickly dying out when grown on the ordinary laboratory media. On blood serum and hydrocele agar the micro-coccus grows as a small, raised, round, translucent colony—"dew drop" form. In bouillon there is a fair growth in 24 hours with chain formation. In litmus milk there is slight acid production, but no coagulation. The micro-coccus does not stain completely by Gram and no evidence of a capsule is seen in smears from cultures. Intravenous, subcutaneous, and intraperitoneal inoculation of rabbits and guinea-pigs gave negative results.

Histological examination of the heart valves show the vegetations to consist of masses of bacteria and thrombus material. The bacteria are peculiar. They have certain resemblances to pneumococci on the one hand, and streptococci on the other, are generally arranged in chains, in some instances elongated forms occurring, and show a well defined capsule. The microorganism does not stain completely by a modified Gram-Wright method.

We wish to express our indebtedness to Dr. F. C. Shattuck and Dr. J. H. Wright for permission to use the material. We also wish to thank Mr. L. S. Brown for the photomicrographs accompanying the article.

FROM THE SKIN DEPARTMENT OF THE MASSACHUSETTS GENERAL HOSPITAL.

Treatment by Salvarsan During the Past Year.

REPORTED BY E. LAWRENCE OLIVER, M.D., BOSTON.

During the year from Nov. 1, 1911, to Nov. 1, 1912, in the Skin Department of the Massachusetts General Hospital, salvarsan has been given intravenously by the members of the Department 565 times to 245 patients; 168 times in Ward G, the Dermatological Ward, and 397 times in the Out-patient Department.

Among those treated in Ward G there were 3 cases in the primary stage, without secondary manifestations, 74 in the secondary stage or under one year duration, 30 cases of later syphilis from 1 to 20 years' duration, and 5 cases of congenital syphilis.

In the Out-patient Department a large majority of the cases were in the secondary stage, while only 2 were in the primary stage.

The apparatus used consisted of a 20 c.c. Luer all-glass syringe connected by rubber tubing to a three-way cock, on which were fitted rubber tubes leading to the bottle to be used and to the Schreiber needle.

The preparation of the patient consisted of scrubbing the left arm with soap and water and then with 70% alcohol, the field thus prepared being covered with a sterile towel until just before the operation. In this way a number of patients were prepared in advance, so that there was less delay during the administration of the salvarsan. The time consumed in the operation averaged about ten minutes, so that in the Out-patient Department six patients were usually teated in an hour. The form of the drug which was used was the neutral or slightly alkaline solution, .6 gm. in 250 c.c. of normal salt solution, made from freshly distilled water. This solution was prepared with aseptic precautions in the Apothecary Department. The solutions of salvarsan and normal salt were heated to approximately blood heat before using.

Before the operation a tourniquet of rubber tubing was applied to the arm a few inches above the elbow and as soon as the veins began to stand out a Schreiber needle previously sterilized by boiling was inserted into one of the more prominent veins, near the bend of the elbow. In about 75 per cent. of the cases, this was successful at the first attempt, the blood flowing freely through the needle; in which case, the tourniquet was removed, and the apparatus previously filled with salt solution was connected with the needle. The piston of the syringe was then slowly pushed in, the salt solution passing into the vein. In most instances, if the needle was not in the vein or had slipped out while the connection was being made, a tumor very soon showed itself at the position of the point of the needle, this, of course, being due to infiltration of the tissues with the salt solution. If this occurred the needle was withdrawn, the tourniquet re-applied as before and another attempt was made to get the needle into a vein. If all went well, no tumor showing after 20 c.c. of the salt solution had been introduced through the needle, the rubber tubing was shifted from the bottle of salt solution to the bottle containing the salvarsan solution, which in turn was drawn up into the syringe and then injected into the vein. This process was re-

peated until the desired amount had been given, when the tubing was again shifted to the salt solution and 10 to 20 c.c. of this given to wash the salvarsan solution away from the point of puncture in the vein. The needle was then withdrawn and the puncture wound covered either with flexible collodion or with a dry sterile gauze dressing. Six times in this series of cases, it was necessary to cut down and expose a vein, the puncture method having failed after several trials; but in the 274 injections given in the past four months, this has not once been resorted to, although on two occasions as many as eight trials with the needle were necessary.

The patients in Ward G were as a rule kept in bed from 12 to 24 hours after the operation, and without food of any kind for at least six hours. The patients in the Out-patient Department were kept sitting on benches from one to two hours after the operation.

During the first four months of this series of cases, the dose given to the ward patients was .3 gm. in nearly all instances. After that the usual dose given in the ward was .5 to .6 gm. In the Out-patient Department the dose, except in a few instances was always .3 gm. A majority of the patients receiving .6 gm. vomited one or more times and had more or less diarrhea, while vomiting was not a common occurrence in the patients who received .3 gm. Of the ward patients 27% had temperatures of over 100°. Of these ten were between 101° and 102°, five were between 102° and 103°, three between 103° and 104° and two between 104° and 105°. These rises in temperature seemed to have no relation to the size of the dose. In most instances the febrile reaction occurred within 12 hours of the treatment and was of short duration.

There were 8 cases of "sore arm" with more or less redness and swelling lasting from one day to a week. In one of these the arm from the wrist to the axilla was red and tender and swollen to nearly twice its normal size. In most of these cases, it was realized at the time of the operation that some of the salvarsan solution had escaped into the tissues. In no case was there any sloughing of the skin about the puncture wound or elsewhere. Two patients fainted at the time of the operation or soon after, but the period of unconsciousness was only a few minutes. There were two cases of unilateral facial paralysis, one occurring a week after injection and the other within a month. Two cases of iritis developed in acute secondary cases within a few weeks after injection. One patient has just come to notice, who complains of constant dizziness and epileptiform attacks coming on several months after the last injection. It is of course open to question whether any of these occurrences were due to salvarsan.

The beneficial effect of the treatment was well marked in most of the patients treated, being especially noticeable in those suffering from secondary lesions of the mucous membranes, these lesions healing rapidly as a rule after the first dose, although in one very severe case of this type four doses were given before the lesions were healed. Three of the primary cases treated have shown no secondary symptoms at the end of four to six months and have had two or more negative Wassermann tests. Each of these cases had three doses at one to two week intervals, the dose in two cases being .3 gm. and in the other .6 gm. The least responsive were the congenital cases, but as in two of these the drug was given for interstitial keratitis no immediate results were expected.

The intervals between doses have been very variable; they have been from a week to a month in most cases, with an average of about two weeks. A very large majority of the patients receiving three doses of .6 gm. each, have shown negative Wassermann tests, but some of these have later become positive. Of the patients receiving three doses of .3 gm. each about 30% have been reported positive after the third dose. Four patients have had five doses, thirty-two patients have had four doses, and a majority of the others two or three doses.

So far as is known, no accidents, other than those mentioned above, have occurred.

Medical Progress.

PROGRESS IN GYNECOLOGY.

GYNECOLOGY AND NEUROLOGY.—ARTIFICIAL VAGINA.—MENSTRUATION.—INTERNAL SECRETIONS.

BY W. L. BURRAGE, M.D., AND S. BUSHMORE, M.D., BOSTON.

GYNECOLOGY AND NEUROLOGY.

ABOUT a year ago there appeared an essay by L. M. Bossi of Genoa[1] which has attracted considerable interest on the part of gynecologists as well as psychiatrists. This article Siemerling[2] has reviewed, criticising it adversely and giving the views which are widely held by gynecologists in Germany and elsewhere. Bossi holds that even slight alterations in the female genital organs may lead to suicide and that not less than half the suicides among women are of gynecological origin, a fact not hitherto recognized on account of defective observation. This tendency is more frequent among women with slight lesions than among those with severe. Flexions of the uterus and retroversion, with consequent infectious endometritis, give rise to the largest number of attempted or successful suicides. There is an intoxication of the whole organism with poisons arising in the endometrium in its inflamed condition. The tendency to suicide is present chiefly at the time of menstruation; and about 50 per cent. of suicides occur at the time of crises in the sexual life: menstruation, puerperium and the menopause. There is, then, a mania for suicide, to be treated by operation; and Bossi reports seven cases cured.

Siemerling rejects Bossi's conception of the mania for suicide as a disease entity which is due to gynecological lesions, generally of slight character and to be treated and cured by cure of the gynecological condition. The analysis of Bossi's own cases shows suicide to be rather a symptom of a severe neurosis or psychosis, a fact which is generally recognized. More careful study of Bossi's cases shows the majority of them to be distinctly hysterical, and Bossi's treatment becomes a form of suggestive therapeutics. To properly appreciate Bossi's work, however, it must be considered in the light of recently accepted views in regard to the relation of the neuroses and psychoses to the female genitalia.

The old theory of the reflex origin of nervous disturbances from gynecological diseases is no longer tenable, and the view that such symptoms are to be directly treated by curing the gynecological condition is incorrect. The literature is not without mention of the failures of operation to relieve reflex symptoms and every operator has had such failures in his own experience. It is possible that two conditions may be present, a neurosis or a psychosis, and at the same time gynecological disease. If the gynecological disease itself demands operation, then operate, but in no case omit the appropriate treatment for the psychosis. The co-operation of gynecologist and psychiatrist is becoming more common, and an example of progress is found in the new conception of vaginismus. It was formerly regarded as a symptom of general nervousness. Walthard has shown it to be a psychic reflex, a phobia in the restricted sense, which demands corresponding treatment. Properly recognizing that many other disturbances of the physiological function of the female genital organs are primarily due to psychoses, Walthard has established in his gynecological clinic a department for phychotherapeutics. This is analogous to the invasion of other fields by the psychiatrist, as in the treatment of nervous dyspepsia and of nervous diseases of the heart.

It is too soon to decide as to the results of Bossi's operations. Stoeckel,[3] reviewing Bossi's[4] more extended reports, is not very hopeful. He says, however, that the actual benefit of Bossi's publication lies in the fact that through it a powerful impetus has been given to renewed investigation, from the therapeutic side, of the undoubtedly important relations of psychiatry to gynecology.

The results of work in Walthard's[5] clinic may be summarized as follows. After the cessation of function of the genital organs following operation, as well as in the physiological climacteric many patients are subject to attacks of sweating, feelings of heat and cold, palpitation of the heart, sleeplessness, irritability of temper, feelings of anxiety and so forth. Some complain of these symptoms, others recall them on questioning and fifteen to twenty per cent. do not experience them at all. In the operative cases, the age of the patient seems to have little influence.

Attention has been called to the fact that these symptoms are probably not the direct necessary result of the removal of the internal genitalia. That the removal of the ovaries is not the cause is shown by the fact that in hysterectomy for myoma the symptoms were only from one to two per cent. more frequent when uterus and ovaries were removed than when the ovaries were left. Severe symptoms, interfering with working capacity, were more frequent (51%) when the ovaries were left, than when the ovaries were removed (40.8%). In a certain number of myoma cases the above noted symptoms were present before the operation. Of these cases a considerable number were relieved by operation although the uterus and ovaries were removed. These symptoms have been accounted for in various ways, by faulty secretion of the ovary, perhaps by oversecretion, perhaps by a myoma hormone, possibly by perverted function of the thyroid gland. The significance of the symptoms has generally been understood to be diseased genital organs. Bossi has taken the extreme view that even slight changes, as displacements, through absorption of toxic products of inflammation, may terminate in a fatal psychosis such as suicidal mania. But the occurrence of such mania with menstruation, pregnancy or the puerperium demands another explanation. Exactly similar mental states are found in patients who have perfectly normal genitalia. Examination of patients in large psychoneurotic clinics (Dubois and Schnyder in Bern) show that ninety per cent. have normal genitalia.

In a group of sixty-five patients who came to the gynecological clinic, patients who presented on careful examination normal genitalia, normal nervous systems and a normal condition of the other organs of the body, such symptoms as flushes, palpitation of heart, faintness, anxiety, irritability of temper, sleeplessness, sweatings and sensations of heat and cold were prominent. But a considerable proportion complained also of symptoms which are not generally held to have anything to do with the genital tract, as increased susceptibility to light, sound or odors, nervous cough, anesthesias, itchings, clonus of various groups of muscles and ptyalism. The conclusion is that none of these symptoms, whether belonging to the group usually characterized as symptoms of the menopause or to the other group, has a direct necessary connection with genital disease, or with the cessation of function of any of the genital organs.

The origin of these symptoms is to be sought, then, in the presence of an intact nervous system, in the heightened irritability of the apparatus of conscious sensation in the cerebral cortex. This point Walthard[6] in a previous article has taken up at length. Cell poisons, disturbances of nutrition and exhaustion are among the causes of heightened irritability. Some of the internal se-

cretions are analogous in their effects, as thyroid substances in Basedow's disease, and adrenalin and pituitrin in their effects on the sympathetic and on the autonomic nervous systems respectively. There is produced so far as our present methods of examination show, no anatomic change in the nerve tissue. An increase in the irritability of the nervous system arises also through pathologic psychic states, the patient's judgment attributes disproportionate and improper values, an element common to neurasthenia, hysteria, hypochondria and melancholia. In the above series of sixty-five cases, there was to be found no trace of chronic poisoning, disturbance of nutrition or exhaustion from physical or mental activity, but careful psycho-analysis in each case revealed a pathologic mental state.

The recognition of this psychopathic condition is of the greatest importance, for these are the patients who after any sort of operation see everything through the magnifying glass of the disordered mind. The cessation of the ovarian function is but the occasion, the provoking cause, in response to which the symptom-complex manifests itself. The prophylaxis is, therefore, not to leave one or both ovaries, in case the uterus is removed, but to consider most carefully the condition of the nervous system in the indications for operation and to subject the psychoneurotic patient to a gynecological operation only under special conditions. It is not the harmless genital disease, but the over-emphasized "having some genital disease" or the overemphasis of some genital symptom, which in the predisposed individual gives rise to the psychoneurotic condition. Thus the etiological treatment in psychotherapy. Opinions differ as to whether this treatment should be given by the psychiatrist or the gynecologist. Walthard begins treatment in such cases himself, referring to the psychiatrist those not easily amenable. The results are very gratifying. The proportion of suitable cases is large enough to make this an important line of work as five per cent. of all the admissions to Walthard's clinic are referred to the psychotherapeutic department.

ARTIFICIAL VAGINA.

The operation for the construction of an artificial vagina in cases of congenital absence of that organ is not new, but considerable increased interest in the subject has been shown of late. At first glance, perhaps, the operation might not seem indicated, for congenital absence of the vagina is associated with other defects which make childbearing impossible. However, as each case should be judged on its own merits and the preference of the patient is the determining factor in this operation of election, distinct indications have appeared and the operation has been followed by results which have been entirely satisfactory to the patients. The formation of a suitable cavity between the bladder and the rectum is an easy matter; the problem is to make the cavity permanent. Plastic operations employing flaps of skin from the thighs, labia or other adjacent parts have been generally given up because the late results prove unsatisfactory. However excellent the immediate results, cicatricial contractions have not been prevented. A hernia sac, portions of peritoneum, and vaginal mucosa from another patient with prolapse have been employed to supply the defect. The first is a curiosity rather than a generally applicable procedure; the other methods have proved very unsatisfactory. The intestine offers the best material by supplying a hollow organ lined with mucous membrane and suitable for the purpose. Either the rectum or the small intestine may be used. Schubert[7] has been the most ardent advocate of the former method, while Stoeckel[8] and Papanicol[9] have employed and De Bovis[10] has advocated the latter. Either a portion (Gersuny) or the whole of the lumen of the rectum may be used. The latter technic is Schubert's and is more likely to give a satisfactory result. The hymen is excised freely, making an adequate opening for the new vagina. A circular incision is made around the anus and by blunt dissection upward the bowel is freed from the sphincter and surrounding tissue for a distance of three centimeters. The free end of the bowel is closed with a running suture to prevent escape of contents. The patient is now placed in the right lateral posture with thighs strongly flexed. An incision is made beginning at a point three centimeters from the anus and extending to the middle of the dorsal aspect of the sacrum. The coccyx is exposed and temporarily resected or removed. A longitudinal incision of the pelvic fascia five centimeters in length is now made. The bowel is exposed and at about twelve centimeters from the anus is caught with traction sutures. The attachments of the bowel are disturbed as little as possible. The peritoneum is not opened and only on the dorsal aspects of the pelvic colon are attachments tied and cut to permit the bringing down of the bowel. When suitably free the bowel is caught in two intestinal clamps and cut. The distal end is closed with a running and a Lembert suture. This stump is attached to the fascia high up in the pelvis to prevent later displacement. The anal end of the lower segment is then brought out at the hymen and caught with a stay suture. The upper segment of the bowel is pulled down through the sphincter and the edges sutured to the skin. The wound is closed with gauze drainage along the bowel. Finally the isolated piece of bowel is opened and sutured to the skin.

The use of the small intestine was suggested by Haeberlin and employed by Mori and Baldwin, all working independently. Baldwin's technic is followed essentially by Stoeckel. A transverse or a longitudinal incision is made midway between the urethra and the anus and dissection is carried up between the bladder and the rectum to the peritoneal cavity, making a

space large enough for the vagina. The vagina is then opened from above. A loop of small intestine is found which reaches easily to the cul-de-sac, generally from twenty to thirty centimeters from the ileo-cecal valve. A segment of small intestine, twenty to twenty-five centimeters long, is isolated between intestinal clamps and cut, each end of the segment being closed with a pursestring suture. The bowel is then anastomosed over the mesentery of the isolated segment by an end-to-end suture, Murphy button or lateral anastomosis, according to the preference of the operator. The middle point of the isolated loop (Baldwin) or one end of the loop (Mori) is pulled down through the cavity made for the vaginal canal. Tacking the mesentery of the loop to the posterior wall of the pelvis to prevent possible hernia has been suggested. The abdomen is then closed. Finally the loop of intestine is opened, sutured to the skin and gently packed with gauze.

The cases are too recent to determine whether the intestinal mucous membrane will preserve its characteristics. The secretion of intestinal juices constitutes no serious objection if the quantity is not great. Patients should be urgently warned against the use of douches containing toxic material, as corrosive sublimate. . The quantity of the secretion is affected by the diet and restriction of proteids gave the most satisfactory results. The objections to the small intestine are its greater dangers in the case of an operation without vital indications; the two changes of position of the patient which are necessary; and the danger of peritonitis and mesenteric thrombosis. If the mesentery of the small intestine should be too short the method would prove utterly inapplicable. The objections to Schubert's method are the danger of necrosis of the isolated piece of rectum and the fact that nothing can be determined as to the condition of the intraperitoneal genital organs, a matter occasionally of importance. The cases operated on by both methods have shown very satisfactory results and none of the anticipated dangers has produced any complications.

MENSTRUATION.

It has been recognized for a long time that rhythmic changes take place in the female human organism, though their nature is not understood, nor their significance, nor the extent to which the whole organism is involved. There have grown up certain conceptions, based on more or less accurate studies, that the rhythmic monthly changes manifested especially in the menstrual discharge of blood from the uterus are an accompaniment of profound metabolic changes affecting the whole physical organism as well as the psychic state. Schmotkin[11] reviews the most important contributions to the literature on the subject. The cyclic anatomical changes in the endometrium are fairly well agreed upon, though the glands seem to be less characteristically and regularly affected than the interglandular substance. With reference to the cyclic changes in the temperature, pulse rate, blood pressure and muscular strength, there is in the literature some agreement as to their occurrence, but not unanimity as to the exact time with reference to some fixed physiological point, as, for instance the beginning of the menstrual flow. Schmotkin carried out a series of observations on eight normal young women, from eighteen to twenty-five years of age, who were employed in the clinic at Strassburg. The observations were made over a period of three months, daily during menstruation, the rest of the time once in two days, and included pulse, temperature, muscular strength and systolic and diastolic blood pressure. The resulting curves show no such rhythmic variation as might have been expected from a consideration of previously cited views; in fact, the lines are approximately straight.

The subject was taken up in other classes of cases in Fehling's clinic by Viville[12] who studied the same phenomena in patients in the hospital, that is in women with gynecological disease. He also is able to detect no influence of the menstrual process on the blood pressure, pulse rate, body temperature or muscular strength. He found greater variations in the individuals who were under treatment for various gynecological disorders than were found in the normal women who were observed by Schmotkin. But these variations occurred apparently without reference to the menstrual period and were present also in women from whom the ovaries had been removed, as well as in those who had passed the physiological menopause.

(To be continued.)

Book Review.

The Mosquito. By ALVAH H. DOTY. Formerly Health Officer of the Port of New York, N. Y. Illustrated. D. Appleton & Company, Publishers. 1912.

In this small book of 79 pages Dr. Doty has compressed much knowledge regarding the mosquito which everyone should know. He discusses very briefly methods of propagation, identification of the more important varieties, breeding places, food, length of life and methods of extermination with certain other matters of equally practical import. The book is commendable for its brevity and simplicity as well as for the facts of value which it contains. It should have a wide circulation.

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THE AUTOMOBILE KNEE.

ANYONE who has watched the physical characteristics of the urban population of our large cities cannot fail to have noticed a decrease of the number of thin people as compared to that to be observed 30 or more years ago. The American, and notably the New Englander, was formerly of marked spare habit, but this characteristic cannot be said to be prominent in the people to be seen in the streets of our large cities at present, or to be met in hotel corridors, places of public amusement, or public conveyances. This is particularly noticeable in women of easy circumstances.

Another evidence of this increase in weight is to be found in the great number of obesity cures advertised for the relief of a suffering public. A still further evidence is presented in the recently published letter of Miss Soldene, recently deceased, of noted and happy memory, an English woman whom some of the theatre-goers of 30 years ago will recall as heading a popular company of British blondes who gave entertainment to and excited the admiration of many of the younger male, amusement-seeking public of the day. Miss Soldene, in her recently published letters, notes the great difference between American women of 1874 and the women of 1896. The former, she said, were "painfully thin, with tiny hands carried affectedly in front of their tiny feet." She found the American woman of 1896, a delightful person, plump and athletic.

It may be left to the sociologist to determine definitely the causes of this change, but they are probably not far to seek and are to be explained as the result of increased wealth, less physical activity, better living, and much less need of daily toil. The people of to-day, in our larger cities rarely walk any distance or take any definite form of exercise, except a very limited class who devote themselves, often somewhat spasmodically, to sport.

The public is carried in street cars; elevators take the place of stairs in our larger buildings, and the necessary activity of the energetic is not directed in the use of the muscles needed in walking or running. Within the last decade the automobile has added to the means of locomotion and at present among the well-to-do a not inconsiderable class of ladies of leisure often spend hours of the day in automobiles enjoying the benefit of fresh air as they are whirled from place to place in what might be termed a leisurely activity. The result of the large doses of fresh air which are in this way obtained helps the circulation and improves the metabolism and increases the appetite. Hearty food and lack of exercise results in an increased deposit of adipose tissue and the result is apparent in the usual well-to-do matron corresponding to the buxom counterpart so commonly referred to in English literature, where the terms of fair, fat and forty are supposed to describe the class of those who have outgrown the restless activity of younger years.

Where this "joy riding" does not lead to obesity it need excite no medical comment, but when, as is too often the case, it is accompanied by an increasing disinclination to activity and the weakening of the muscles of locomotion from limited use, the resulting condition is one which may cause no slight inconvenience.

Persons of extremely indolent habits of life may be found who rarely walk more than the few steps that are needed from the chamber to the elevator, from the elevator to the dining-room, or lounging-room, and then to the automobile. In fact, the greatest physical ordeal or exercise of the lower limbs undergone by many of these ladies is that needed in the fitting of dresses.

If any one should spend the greater part of the day seated in an easy chear, it is clear that the muscles of the lower extremities would weaken from disuse and the effect of this would be increased by the increased size of the limb due to an accumulation of adipose tissue, and at times by a thickening of the tissues from a

slowing up of the circulation resulting from a sitting position maintained without change for many hours. The limited use of the limb also causes a lack of firmness in the periarticular ligaments. All influences combine to give to the knee joint a lack of resistance and a susceptibility to injury from slight strains. The danger of this is increased by the foot wear which is usually much smaller than is needed to give a firm base of support, and this is complicated by heels which are designed for style rather than for the steady support of the superimposed body weight. Under the circumstances it is not strange that knee strains, slight in themselves but giving rise to much inconvenience, are not uncommon. These present characteristic symptoms. The limb usually large and fat may show, unless violently strained, no increase of synovial fluid and complaint is made of great fatigue or pain in standing. There is little or no pain if the limb is not used in weight-bearing exertion. The pain is localized on the inner side of the knee, passing from the inner condyle to the tibia and slightly in front. There is tenderness on deep pressure and sometimes quite marked sensitiveness, but no heat. Careful passive motion is not painful, but pain is complained of in walking up-stairs, and especially in kneeling or bending the knee with the patient standing. This condition may be termed an automobile knee as it is indirectly due to long hours spent in motoring, but it may be observed in persons of muscular inactivity who walk but little and are able to digest well, with active appetites. Occasionally, not infrequently in the summer months, people are to be seen who pass from six to eight hours a day in automobiles, and who walk practically not at all. The result cannot fail to be marked by a notable weakness of the muscles and ligaments of the lower extremities, which manifests itself in the way mentioned. The affection is manifestly more common in women than men, but may occasionally be seen in them.

Physicians consulted are often inclined to attribute this condition to rheumatism or gout, and these may complicate the condition; but in cases of the pure type, the affection may be classed as chronic congestive strain of ligaments of the knee joint.

The treatment of this condition needs little comment. Drugs are of little use. Hyperaemia treatment in its various forms is beneficial, but it is essential that the limb should be strengthened by gradually increasing use.

PROGRESS OF THE BALKAN WAR.

After a brief but ineffectual armistice, which failed to result in the arrangement of peace terms, hostilities in the Balkan War were resumed on Friday, November 21. The position of the Turks appears to continue precarious, that of the allies progressively stronger and more surely victorious. Many of the most important towns, upon which Turkey relied for defence, have fallen, and Constantinople itself is now nearly beset. The Turkish army, hard pressed on every hand, is driven back into a narrow belt of territory bordering on the Bosphorus.

Meantime pestilential disease continues to kill many more than does the sword. No accurately reliable statistics of the numbers infected with Asiatic cholera are available, but it seems certain that the incidence and mortality of the disease among the Turks are very high. Apparently the infection has also appeared among the troops of the allied army. Report from Vienna on Nov. 19 states that Professor Krauss with a staff of five bacteriologists has gone to Sofia to undertake control of the epidemics of cholera and typhoid which have broken out among the Bulgars. One case of cholera was reported at Sofia on November 25. The sufferings of cholera patients in the field and unable to reach hospitals are very great. Moreover, transportation and hospital facilities are entirely inadequate. Report from Constantinople on November 21 states that 2000 cases of cholera have been quartered in the mosque of St. Sophia in that city. Assistance is being offered by other nations to all parties in the conflict. The Servian Red Cross, though one of the earliest established, most efficient, and best organized societies, is unable adequately to deal with the work required of it in the military hospitals. It is reported that Russia has placed money and supplies at the disposal of the Turkish Red Crescent. American subsidies are impartially distributed on both sides. The total American fund thus far amounts to $58,850, of which $4,707 have been subscribed in Massachusetts.

Of course, such an extensive epidemic of cholera as is now being fostered in the Balkan peninsula by the conditions of war constitutes a genuine menace to the health of other countries. Meantime quarantine laws, however, are apparently being observed with considerable strictness. Nevertheless, some cases of infection are

bound to slip through the lines. Report from Odessa, Austria, on Nov. 21, states that the British steamer, *Bosnian*, recently arrived at that port from Constantinople, was found to have two cases of cholera aboard. In the United States, the Public Health Service has ordered rigid inspection of all vessels arriving from Mediterranean ports, especially those from Turkey. Vigilance of public officials should be adequate to prevent absolutely any possibility of the introduction of Asiatic cholera into this country.

Later reports indicate that cholera is extensively epidemic in the besieged city of Adrianople, and is spreading into Servia and Bulgaria. At Constantinople on Nov. 27, Joachim III, archbishop of the city and ecumenical patriarch of the Greek Orthodox Church, died of the disease; and on the same day two German war correspondents became infected. Dr. Bernmüller, a German official, died of cholera in camp at San Stefano on Nov. 26. Because of the inefficiency of the Turkish Red Crescent, several English, Scotch and American residents in Constantinople, including Major Clyde S. Ford, of the United States Army Medical Corps, are reported to have volunteered and to have assumed virtual charge of the care of the sick in the San Stefano cholera hospitals.

MEDICAL NOTES.

A BRITISH CENTENARIAN.—William Head, who died recently at Windsor, England, is said to have been born on Oct. 11, 1807, near Newbury. He worked as a day laborer till he was 96 years old, and retained excellent health and a good appetite to the day of his death. For the last 90 years of his life he habitually smoked shag tobacco and drank beer, and considered that their use had not only materially contributed to his happiness, but had prolonged his longevity.

AWARD OF THE RETZIUS GOLD MEDAL.—It is announced that the Retzius gold medal has been awarded by the Swedish Medical Society to Dr. John Newport Langley, professor of physiology at the University of Cambridge, England, for his work on the nervous system.

HORACE DOBELL LECTURE.—On Thursday, Nov. 21, Dr. C. J. Martin delivered the Horace Dobell lecture on "Insect Porters of Bacterial Infection," before the Royal College of Physicians, London.

BOSTON AND NEW ENGLAND.

SUCCESSFUL CANDIDATES IN DENTISTRY.—It is announced that of the 95 applicants who recently took the examinations before the Massachusetts State Board of Registration in Dentistry, 45 passed, and are now qualified to practice their profession in this state.

PENALTY FOR UNREGISTERED DENTISTS.—Before the Boston municipal court this week a man and a woman were fined $100 and $50 respectively for conducting an unregistered dental establishment in this city and for practicing dentistry unlawfully.

HOSPITAL CONCERTS FOR DECEMBER.—It is announced that the concerts of the Boston Hospital Music Fund during the month of December, 1912, will be given as follows:—On Dec. 1, at the Holy Ghost Hospital for Incurables, Cambridge, Mass.; on Dec. 8, at the Channing Home, Longwood, Mass.; on Dec. 11, at the Soldiers' Home, Chelsea, Mass.; on Dec. 15, at the New England Hospital for Women and Children, Roxbury, Mass.; on Dec. 22, at the Massachusetts Homeopathic Hospital, Boston; and on Dec. 29, at the Cambridge (Mass.) City Hospital.

PRECAUTIONS AGAINST GLANDERS IN BOSTON.—Recently a glandered horse was observed to drink from a public fountain in Boston. The horse was immediately quarantined, the fountain cleaned and its trough disinfected by the Board of Health, to prevent further spread of the infection.

LECTURE BY DR. GOLDTHWAIT AT MOUNT HOLYOKE.—On Saturday evening, Nov. 23, Dr. Joel E. Goldthwait, of Boston, lectured at Mount Holyoke College, Holyoke, Mass., on "The Relation of Poise to the Efficiency of the Human Being."

MEASLES IN NAHANT.—It is reported that measles has recently been epidemic in Nahant, Mass., 47 cases having occurred during the week ending Nov. 23. The local public schools were closed until Dec. 2 to prevent further spread of the infection.

New England Peabody Home for Crippled Children.—At the annual meeting of the New England Peabody Home for Crippled Children, held recently in Boston, the matron reported that there are at present thirty inmates in the home. Bequests received during the year amounted to $4,081. The annual fair for the benefit of the institution is to be held at Hotel Brunswick, Boston, on Thursday, Friday and Saturday of this week, Dec. 5, 6 and 7.

Two Important Medical Bequests.—By the will of the late Francis Amory, of Boston, who died in New York City on Nov. 10, his residuary estate is bequeathed to the Boston Lying-in Hospital to constitute a fund in memory of his grandfather, Francis Amory, of Milton, Mass. It is provided that the principal of this fund, which it is expected will amount to $500,000, shall not be spent, and that the interest shall be allowed to accumulate for 21 years before being used. To the American Academy of Arts and Sciences is given the sum of $25,000, the income of which is also to accumulate for 21 years.

"The income is then to be used for a septennial prize and gold medal or other token of honor and merit, to be awarded by the president and fellows of the academy to any individual or individuals who shall, in their judgment and belief, during the said septennial period next preceding any award thereof, through experiment, study or otherwise, discover any notably useful remedy, or invent any cunning device or instrument, for the treatment and care of certain diseases; or in the absence of discovery of such remedies or inventions the award may be made for written treatises upon said diseases."

Massachusetts School for the Feeble-Minded.—The recently published sixty-fourth annual report of the trustees of the Massachusetts School for the Feeble-Minded, at Waltham, records the work of this institution for the year ending Nov. 30, 1911. During this period 217 new cases were admitted, 120 were discharged, and 32 died, leaving a total of 1495 inmates, of whom 1255 were at Waverley and 240 at Templeton. It is estimated that there are at present over 6700 feeble-minded persons in this state, most of them hereditary defectives and instinctive potential or actual criminals, whose complete segregation and prevention from procreation would be of immense economic and social advantage.

Waltham Training-School for Nurses.—The recently published twenty-seventh annual report of the Waltham Training-School for Nurses records the history of this institution and its work during the past year. Fourteen pupils were graduated from the school in 1911, making a total of 319 since its foundation. The report contains a review of the growth of the school, a description of its methods of instruction, and an account of its relations with the Waltham Hospital.

Boston Mortality Statistics.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Nov. 23, 1912, is 212, against 168 the corresponding week last year, showing an increase of 44 deaths, and making the death rate for the week 15.35. Of this number 113 were males and 99 were females; 205 were white and 7 colored; 119 were born in the United States, 90 in foreign countries, and 3 unknown; 33 were of American parentage, 145 of foreign parentage, and 34 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 35 cases and 2 deaths; scarlatina, 40 cases and 0 deaths; typhoid fever, 7 cases and 1 death; measles, 77 cases and 2 deaths; tuberculosis, 54 cases and 19 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 22, whooping cough 2, heart disease 37, bronchitis 3. There were 23 deaths from violent causes. The number of children who died under one year was 28; the number under five years 39. The number of persons who died over sixty years of age was 60. The deaths in hospitals and public institutions were 81.

Deducting the deaths of non-residents, the total is 190. Then the corrected death-rate is 13.76.

Cases of infectious diseases reported to the Boston Board of Health for the week ending Nov. 26, 1912, are: diphtheria, 42; scarlatina, 37; typhoid fever, 9; measles, 119; smallpox, 1; tuberculosis to week ending Nov. 23, 1912, 54.

The death rate of the reported deaths for the week was 16.73.

NEW YORK.

Functions of a Hospital.—In his annual report, which was presented to the board of trustees on November 18, President Nicholas Murray Butler of Columbia University states

that during the past twelve months gifts to the amount of $2,175,176 were received, and that approximately $16,000,000 is required to meet the present needs of the university and the general plans for its further development. Of this total, $6,000,000 is the estimated cost of moving the College of Physicians and Surgeons from its present location at Tenth Avenue, 59th and 60th Streets, to the site secured for it near the university campus on Morningside Heights; involving rebuilding and extensive additional equipment. The report states that the new arrangement by which an alliance was affected between the medical school and the Presbyterian Hospital has admittedly worked well, and that none of the difficulties anticipated by some has been encountered. In speaking of this matter President Butler says: "It is now clear to hospital managers that the mere care of the ill and suffering is only one-half of a hospital's business. The other half is to assist in the study of disease and in the better training of those upon whom is to devolve the responsibility for the prevention and cure of disease hereafter."

VALUE OF THE SPINAL CAT.—The *New York Times* recently received a letter inquiring what could be the benefit to humanity of keeping a decapitated cat alive for several hours, a demonstration in a local laboratory, during the Clinical Congress of Surgeons, a short account of which the paper had published. The question, though disguised as a simple request for information, evidently came from an anti-vivisectionist, and the *Times* asked Dr. Frederick S. Lee, professor of physiology in Columbia University, to make a reply. This he has done in a very complete and admirable manner, and in the course of his communication Prof. Lee says: "It simplifies the study of many of the problems of the action of the cord itself and its relation to the bodily organs if the brain can be removed. This is done most readily, and wholly without pain, by careful decapitation. By such a procedure the animal becomes a 'spinal animal,' a simplified organism without consciousness, but capable of giving us valuable knowledge of vital mechanisms. By the study of spinal animals we have obtained much of our knowledge of the laws of reflex actions, those actions of our muscles and other organs which constitute by far the majority of our activities. Largely by the same method also we have learned what parts of the spinal cord constitute the central stations for the control of many of our activities, and what are the routes within the cord along which are sent upward and downward, and from side to side, the multifarious nervous impulses which enter into our daily lives. Perhaps 'M. G. H.' (the writer of the letter) may think that it still remains to be proved that advancement in physiological knowledge is of benefit to humanity. Here, then, arises the abstract question, How nearly immediate to man must knowledge be in order to be of benefit to him? Perhaps only the gods can answer, but the man of science likes to believe that human beings can draw no line at which knowledge ceases to be beneficial." Having referred to the wonderful results in electricity from Galvani's simple experiments on frogs, in the determination of blood-pressures from the attempt of an English country clergyman, Stephen Hales, to measure the pressure in the arteries of the horse, in the ligature treatment of anuerysm from John Hunter's tying the carotid artery of a stag to ascertain the effect of this upon the half-grown horns, and in midwifery from the knowledge of the nervous mechanism of childbirth derived from Goltz's study of the reflex actions of a portion of the isolated spinal cord of an animal, Dr. Lee goes on to say: "In locating tumors within the spinal cord, so that the surgeon can proceed to remove them, one of the most important classes of symptoms to be employed is the reflex actions that are still possible to the diseased body. A careful study of the reflex actions of spinal animals has thus made the accurate location of such tumors possible. It was only about twelve years ago that the first spinal tumor was successfully taken out, and already surgeons have succeeded in locating and removing more than three hundred of them. A well-known neurologist of New York has grouped tumors, injuries, paralyses, meningitis and myelitis as the diseases of the spinal cord in the elucidation of which animal experimentation has helped, or is likely to help. In this work for mankind the spinal animal has already performed and will still perform an honorable part."

PROHIBITION OF A TUBERCULOSIS HOSPITAL.—The State Commissioner of Health has denied the application of the supervisors of Westchester County to establish a tuberculosis hospital on Yorktown Heights. His ground for this action is the possible danger of pollution of the water supply of New York, as through the farm

on which it was proposed to locate the institution there flow two brooks emptying into the Croton reservoir. In refusing his permission he says: "There can be no positive assurance that a sewage-disposal plant, such as it is contemplated erecting here, would always be operated at a maximum of efficiency, and if this is the case a danger of contamination of the water supply would result. Every protection against water-borne diseases that this law can give or science afford should be available to the city to safeguard its water supply. It should also be borne in mind that the City of New York has power, under the law, to protect its watershed from contamination, and that the establishment of this institution at a point where it threatened the water supply might result in proceedings against it by the city, which would be exceedingly expensive to the county. In view of the possibility of danger we must proceed with great caution, and, in face of the serious protests of those charged with protection of the water supply of the City of New York from contamination, I cannot accept the responsibility of granting my approval of this site."

MORTALITY FROM DIARRHEAL DISEASE.—The *Monthly Bulletin* of the State Department of Health reports that in September, while the deaths in the State from diarrheal diseases in children under two years were 200 less than the average of the past five years, in the rural population the diarrheal deaths were double those of July.

ASSOCIATION OF RAILWAY SURGEONS.—The twenty-second annual meeting of the New York and New England Association of Railway Surgeons was held at the Hotel Astor on Nov. 13 and 14. A large number of papers were read, and an address on surgery was delivered, by invitation, by Dr. John B. Murphy of Chicago. The following officers were elected: President, Dr. John W. LeSteur, Batavia, N. Y.; first vice-president, Dr. C. A. Pease, Burlington, Vt.; second vice-president, Dr. W. H. Marcey, Nashua, N. H.; corresponding secretary, Dr. George Chaffee, Brooklyn, N. Y.; recording secretary, Dr. J. H. Reid, Troy, N. Y.; treasurer, Dr. J. K. Stockwell, Oswego, N. Y.

Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

NOVEMBER 23, 1912.

1. BASKERVILLE, C. *Chemistry of Inhalation Anesthetics.*
2. *ALLEN, F. *Spinal Anesthesia.*
3. *GWATHMEY, J. T. *American Statistics.*
4. *MILLER, A. H. *Postoperative Mortality from Anesthetics.*
5. *TETER, C. K. *The Limitations of Nitrous Oxid with Oxygen as a General Anesthetic.*
6. LUMBARD, J. E. *Helps in Surgical Anesthesia.*
7. RAINBRIDGE, W. S. *Spinal Analgesia.*
8. PINNEO, F. W. *Anesthesia by Pharyngeal Insufflation.*
9. KERR, L. *Some Reasons for Surgical Failures in Children.*
10. PRUDDEN, C. E. *Modification of the Ferguson Open-Drop Method Ether-Inhaler, and Mode of Etherization.*
11. SALZEV, M. *Nitrous Oxid-Oxygen Anesthesia with Report of a Fatal Case.*
12. HITCHINGS, F. W. *Resuscitation from Drowning: Continued Persistence of Heart-Beat; Death from Non-Resuscitation of the Respiratory Centers.*
13. GRIFFITH, J. P. C. *The Ability of Mothers to Nurse Their Children.*
14. MCCLANAHAN, H. M. *Supplemental Breast-Feeding in Infants.*
15. TUCKER, B. R. *Some Cases of Hysteria Presenting Symptoms Usually Found Only in Organic Diseases.*
16. SCHAMBERG, M. I. *The Reciprocal Influences of Morbid Conditions of the Mouth, Jaws and General Economy.*
17. FRIEDMAN, L. *Temporary Toxic Amaurosis and Paralysis Following Injection of Ethyl Alcohol into a Chronic Empyema Sinus.*
18. FURNISS, H. D. *Cystoscope Holder.*
19. PARSONS, C. G. *An Ether-Mask Cover.*
20. KEYES, A. B. *Penetrating Abdominal Wall Wound by Revolver Bullet, Complicated by Twenty-two Intestinal Perforations; Operation and Recovery.*

2. Allen is extremely enthusiastic over spinal anesthesia with 5% tropococaine hydrochloride solution with epinephrin. He believes that surgeons are loath to adopt it because of its former high mortality. The author, who formerly considered spinal anesthesia dangerous, now considers it remarkably safe. It requires special skill to get the best results and should not be undertaken by one unfamiliar with the technic. Allen hopes soon to see it used in all cases of hernia, fistula in ano, hemorrhoids, varicose veins, hydrocele, varicocele and many orthopedic operations.

3. Gwathmey's statistics show in 278,945 administrations of anesthesia for ether one death in every 5,623, for nitrous oxide ether sequence one death in every 6,905, chloroform one death in 2,048. Reports show that the drop method of giving ether is rapidly becoming more popular, while the use of chloroform is rapidly decreasing and anesthol is taking its rightful place as a safe preliminary to ether anesthesia.

4. Miller arranges anesthetics in order of their safety as follows: (1) nitrous oxide, (2) ether, (3) ethyl chloride, (4) chloroform.

5. Teter states that he would personally rather take ether from an inexperienced anesthetist than nitrous oxide. Nitrous oxide should not be given to children under five years or to the very old, especially the arteriosclerotic. One is compelled to use ether in addition to nitrous oxide in about 25% of

cases in order to procure proper relaxation. A patient who is very robust and vigorous and who requires large amounts of anesthetic to produce surgical anesthesia is not a good subject for nitrous oxide. The ideal patients are the very ill, the anemic, and debilitated, or those who do not require a powerful anesthetic agent. [E. H. R.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

OCTOBER, 1912.

1. DOCK, G. *Defective Development from Arthritis in Early Life.*
2. *PEMBERTON, R. *The Metabolism and Successful Treatment of Chronic Joint Disease.*
3. AARON, C. D. *The Healing of Gastric and Duodenal Ulcers with Bismuth.*
4. *FISHBEIN, M. *Contribution to the Bacteriology of Peritonitis, with Special Reference to Primary Peritonitis.*
5. *TALLEY, J. E. *The Prognostic Significance of the Atropine Reaction in Cardiac Disease.*
6. *BROWN, L. *The Therapeutic Use of Tuberculin: A Working Hypothesis and Some Personal Observations.*
7. *VOORSANGER, W. C. *Rest versus Climate in the Treatment of Pulmonary Tuberculosis.*
8. *MONTGOMERY, C. M. *Diabetes Mellitus and Tuberculosis.*
9. *RINGER, P. H. *A Further Study of the Prognostic Value of Arneth's Leukocytic Blood Picture in Pulmonary Tuberculosis.*
10. CORBETT, J. F. *Changes in the Kidney Resulting from Tying the Ureter.*
11. *MCCOMBS, R. S. *Clinical Manifestations of Illuminating Gas Poisoning.*

2. Pemberton reports cases of chronic arthritis successfully treated by careful dieting, principally by restriction of the nitrogenous foods, but also with limitation of all nourishment to the caloric needs of the patient. Colonic lavage was practiced in connection with the treatment. In some of the cases careful studies of metabolism and of fecal bacterial output were carried out; coincident with improvement the latter was increased and an increase was noted in the excretion of ethereal sulphates.

4. Fishbein has collected the bacteriological findings in 126 cases of peritonitis, 32 of these being classed as primary peritonitis. Most frequent both in the primary and in the secondary cases was the colon bacillus in association with some other organism, a staphylococcus, a streptococcus or the pneumococcus. Mention is made of the finding of anaerobic bacteria by other authors, but these were not tested for in this series. The gonococcus also was not directly sought for. The fact that primary peritonitis formed 25% of the cases is noteworthy. Practically all of these primary cases occurred in individuals with some chronic wasting disease which may well have lowered the resistance of the peritoneum.

5. Talley has applied Cushny's atropine reaction test in a number of cases of heart disease and in cases with other disease and in normal subjects as controls. The reaction is an acceleration of the heart rate occurring usually in from twenty minutes to half an hour after the subcutaneous injection of from 1-50 to 1-25 grain of atropine. Normally an acceleration of from 30 to 40 beats per minute is found. It is concluded that a reaction of 20 or less in a heart not recently subjected to exhausting disease points to a degenerative process in the cardiac tissue which makes the outlook for improvement under treatment unpromising. Cases of auricular fibrillation with responses normal or above are promising subjects for treatment. By performing the test both before and during the use of digitalis it is possible to determine to what extent the slowing of the heart under the influence of digitalis is due to the action of the digitalis upon the vagus and how much is due to its action on the heart muscle. Cases in which the latter action predominates are usually more capable of marked response to treatment.

6. Brown's article upon the therapeutic use of tuberculin is of great interest as a statement from one whose opinion on the matter carries much weight. Definite facts, however, are still wanting to furnish proof beyond dispute. The author believes that incipient cases treated with tuberculin do somewhat better than those not so treated; that moderately advanced cases do much better; and that in certain very chronic cases the benefit is striking.

7. Voorsanger contributes some much needed emphasis upon the importance of the element of bodily and mental rest in the treatment of tuberculosis. He publishes a series of 210 cases treated mostly at their homes in San Francisco, the climate of which has generally been considered an unfavorable one; 31 were apparently cured, 74 arrested, 34 improved, 36 unimproved and 35 died. While in an earlier report the author attributed the results in the earlier cases of this series to tuberculin treatment, he is now inclined to the belief that his success has been due to the enforced rest in still larger part.

8. Montgomery has collected a large amount of statistical evidence as to the coincident occurrence of tuberculosis and diabetes. He concludes that while it is not definitely proved that tuberculosis occurs more frequently in diabetics than in the general population, it is apparent that a large number of diabetics develop late in their course a very acute and rapidly fatal form of pulmonary tuberculosis.

9. Ringer reports continued favorable results with Arneth's method of blood counting as an aid in determining the prognosis in pulmonary tuberculosis.

11. McCombs summarizes his observations in 1000 cases of illuminating gas poisoning which he has had opportunity to see through his connection with several large gas companies. He divides the manifestations into three classes according to three stages of the condition. The first of these is that in which consciousness is retained; it is characterized by cerebral excitement, dizziness, headache, pains in the extremities and muscular twitchings, feeling of constriction of the chest, nausea and vomiting. The pupils are widely dilated, the pulse slow and the blood-pressure increased. The second stage begins with unconsciousness and ends with cessation of respiration; the temperature is elevated, pulse and respiration increased; convulsions and rigidity may occur. The cherry red markings of the skin may begin to appear. In the third stage the respirations have gradually become weaker until there is complete apnoea. The heart is rapid, weak and intermittent. Cyanosis is absent. The most reliable test for the presence of carbon monoxide in the blood is the spectroscopic. Patients at first apparently little affected may suddenly show severe effects even hours after the exposure has ceased. In cases that are breathing well when rescued the danger is as a rule over after an hour. The essential of treatment is the inhalation of oxygen, under pressure if possible, with artificial respiration best furnished by mechanical means. If this is not sufficient, venesection and the introduction of normal salt solution may be tried, or better still, transfusion. Among men frequently exposed to carbon monoxide in their work slight symptoms are of common occurrence and are regarded as of little consequence; no notable injury to the general health is observed, although the blood often shows a polycythemia. [F. W. P.]

NOVEMBER, 1912.

1. *MCCRAE, T. *Tertiary Syphilis of the Liver.*
2. *MORSE, J. L. *Maltose in Infant Feeding.*
3. *WARFIELD, L. M. *Bismuth Poisoning.*
4. *COLEMAN, W. *Weight Curves in Typhoid Fever.*
5. BELL, A. J. *Observations upon Scarlet Fever.*

Diphtheria and Measles at the Cincinnati Contagious Hospital.

6. *BROWN, T. R. *Studies on the Motor Functions of the Stomach by the Use of the Gastric and Duodenal Fistulae.*
7. CLAYTOR, T. A. *The More Common Forms of Cardiac Irregularity, with the Report of a Case of Heart Block.*
8. *GRUNER, O. C., AND MULLAY, E. G. *Cryptogenetic Granulomatosis of the Stomach.*
9. ROBERTS, D. *The Alimentary Hypersecretion of Chronic Ulcer as Shown by the Lactose Test Meal.*
10. RECKFORD, F. F. D. *Intermittent Spinal Claudication.*
11. COLLINS, J., AND ARMOUR, R. G. *The Metastasis of Hypernephroma in the Nervous System; Jacksonian Epilepsy Caused by Such a Lesion.*
12. GITTINGS, J. G., AND PEMBERTON, R. *Metabolic Observations on Amuotonia Congenita.*

1. McCrae's article is an able discussion of the subject of syphilis of the liver, based upon a series of 56 cases. The clinical picture is a varied one, often with prominent general symptoms, of which loss of weight and fever are common. Locally, enlargement of the liver and the occurrence of nodules or large rounded masses are the most common. A striking feature is the relatively marked enlargement of the left lobe as compared with the right. The diagnosis is often difficult, some cases resembling those of malignant disease and others simulating cirrhosis. The therapeutic test is an important aid which should be freely applied. It is to be remembered, however, that although treatment can influence the active syphilitic process even to complete recovery it cannot influence the cirrhosis or amyloid disease which may already have been induced as its result.

2. Morse discusses the different characteristics of sugars, notably lactose and maltose, with regard to their behavior when employed in infant feeding. The question is an important one since certain popular proprietary infant foods are composed mainly of maltose. He concludes that lactose is for many reasons preferable to maltose for the feeding of normal infants, and that in diarrheas due to the gas bacillus and similar organisms maltose is contraindicated; in diarrheas due to the dysentery bacillus lactose is preferable. There is, however, a type of intestinal indigestion due to the fermentation of sugar in the treatment of the convalescent stage of which maltose is better borne than lactose.

3. Warfield reports a case of bismuth poisoning and summarizes the literature. The occurrence of poisoning due to bismuth itself has not hitherto been generally recognized, the symptoms having been attributed to nitrite poisoning or to impurities such as arsenic. The author, however, maintains that bismuth is a true metallic poison to be used with caution on account of the danger of absorption, especially from sinuses and from ulcerated surfaces. When this occurs a rather typical picture is described. In mild cases a violet-black line on the gums may be the only manifestation. In more marked cases there is a stomatitis which may be ulcerative with diphtheritic membrane and greater discoloration of the gum margins and mucosa. In severe cases there may be fever, hiccough, vomiting, diarrhea and albuminuria.

4. Coleman discusses the metabolism in typhoid fever and publishes weight curves in a series of cases to demonstrate that with attention to diet it is possible to maintain patients in weight equilibrium throughout the disease.

6. Brown reports observations in dogs with gastric and duodenal fistulae on the influence of certain substances, especially various saline cathartics upon the motor functions of the stomach. He concludes that in contrast to their action upon the intestines their action on the stomach is inhibitory.

8. Gruner and Mullay discuss the conditions which produce thickening of the walls of the stomach, the so-called cirrhosis of the stomach or linitis plastica. They maintain that the microscopic anatomy is not always the same and propose the division of cases into three classes: (1) definitely cancerous cases, (2) precancerous or doubtfully cancerous cases, and (3) non-cancerous cases. They conclude that the last type may be the effect of some chronic infectious agent whose nature is as yet undetermined.

[F. W. P.]

THE LANCET.

NOVEMBER 2, 1912.

1. *ADAMI, J. G. *A Study in Eugenics: Unto the Third and Fourth Generation."*
2. *WHITE, W. H. *The Importance of Examining the Urine Bacteriologically.*
3. *COOMBS, C., MILLER, R., AND KETTLE, E. H. *The Histology of Experimental Rheumatism.*
4. KNOX, R., *and* SALMOND, R. W. A. *An Analysis of Injury to the Bones at the Wrist, Based on the Radiographic Examination of 214 Cases.*
5. LEE, C. E. *Auricular Fibrillation.*
6. MILLER, C. H. *A Case of Auricular Fibrillation in Pregnancy.*

1. Adami speaks strongly against the theory of Weismann and Galton that it is nurture and not nature which is responsible for the characteristics, good and bad, which develop in the young. He believes that inherited characteristics and tendencies are a greater factor than those acquired.

2. White believes that much valuable evidence may be obtained from an examination of the bacteria in the urine. Under this heading he discusses the pyelitis of pregnancy and its etiology and presents several illustrative cases, such as chronic arthritis, general staphylococcus infection, streptococcal infection, bacillus coli infection and others where the examination of the urine bacteriologically helped in the diagnosis and a vaccine prepared from these organisms assisted in treatment. His remarks are interesting, but not conclusive.

3. The writers have produced experimental arthritis, carditis and other lesions by injecting rabbits with streptococci recovered from cases of rheumatic infection. Histologically the lesions thus produced are identical with those produced by other observers and include all the phenomena found in man.

[J. B. H.]

NOVEMBER 9, 1912.

1. *FLEXNER, S. *Some Problems in Infection and Its Control.*
2. *LEES, D. B. *The Diagnosis and Treatment of Incipient Tuberculosis.*
3. PARSONS, J. H. *The Treatment of Unilateral Cataract.*
4. TELFORD, E. D. *Hemi-Hypertrophy of the Body with Nevus and Varicose Veins.*
5. ROSS, E. A. *A Case of Meningitis in Which the Only Organism That Could Be Cultivated from the Cerebro-spinal Fluid During Life was a Bacillus of the Proteus Group.*
6. CUMMING, J. H. *A Case of Pneumococcal Cerebro-Spinal Meningitis.*
7. ZOLDER, W. L. *Pancreatitis with Jaundice in the Infectious Diseases with Notes on Four Cases.*
8. CAMPBELL, W. A. *Fracture of the Carpal Scaploid Bone Associated with Median Nerve Involvement.*

1. Flexner in the Huxley Lecture goes over the subject of poliomyelitis in great detail, considering its history, roots of infection, pathology and the infectious agent as one of the filterable viruses and its properties. He describes the modes of infection through the nose, throat and intestines; the site of entry and exit and the part played by domestic animals as sources of infection. Under treatment he considers the use of immune serum and hexamethylenamine.

2. Lees first considers the extent of tuberculosis and the need of its prompt diagnosis and treatment and then briefly mentions the incidence of bovine and human tuberculosis. As to early diagnosis he warns against waiting for a positive sputum and goes at length into the value of percussion and the comparatively little value of auscultation and other methods. He describes various dull areas which, according to him, are invariably present in early tuberculosis. These dull areas, of which in one diagram he indicates 27, correspond to the apices (and other vulnerable spots) of the various lobes. Under treatment as usual he advocates the continuous antiseptic inhalation. Of this little comment need be made. (This paper, given a prominent place in both the *Lancet* and *British Medical Journal*, is remarkable. In addition to not mentioning in any way whatever the constitutional signs and symptoms of early tuberculous disease, such as loss of weight and strength, fever, cough, hemorrhage and others, he outlines certain dull areas as pathognomonic of early disease which in the reviewer's opinion, cannot and do not exist. Such papers as this will do harm rather than good. Editorial comment in the *Lancet* is quite in accord with the reviewer's opinion.) [J. B. H.]

BRITISH MEDICAL JOURNAL.

NOVEMBER 2, 1912.

1. *OSLER, W. *An Address on High Blood Pressure: Its Associations, Advantages and Disadvantages.*
2. *DILLING, W. J. *The Calculation of Drug Dosage for Children. With Description of a New and Simple Method.*
3. MURSELL, H. T. *Successful Removal of a Tumor in the Adrenal Gland.*
4. FINZI, N. S. *Some Experiments with Ionic Medication.*
5. CARTER, A. H. *A Case of Uremia Treated by Morphine.*
6. WATSON, C. G. *Two Cases of Peptic Ulcer of the Oesophagus.*

THE BRITISH MEDICAL ASSOCIATION.

SECTION OF TROPICAL MEDICINE.

7. TODD, J. L. *Introductory Remarks by the President.*
8. *STEPHENS, J. W. W., AND FANTHAM, H. B.; KLEINE, F. K.; MESNIL, F.; KINGHORN, A., AND YORKE, W.; WOLBACH, S. B., AND BINGER, C. A. L.. *Papers Dealing with Trypanosomiasis.*
9. DUVAL, C., MARCHOUX, M. E., AND BAYON, H. *Papers Dealing with Leprosy.*
10. PATTON, W. S., ROW, R., AND FANTHAM, H. B. *Papers Dealing with Leishmaniasis.*
11. WATSON, M., BROWN, W. C., LAW, W. F., WISE, K. S., AND MINETT, E. P. *Papers Dealing with Sanitation of the Agricultural Estates in the Tropics.*
12. BAYON, H. *Demonstration of Specimens Relating to the Transmission of Artificial Cultures of "Leishmania Infantum" to Mice and Rats.*
13. WEINBERG, M. *Helminthic Toxins.*
14. *BASSETT-SMITH. *Blood Determination in a Case of Katayama's Disease.*
15. CASTELLANI, A. *Copra Itch. Note on the Importance of Hyphomycetes and Other Fungi in Tropical Pathology.*
16. MADDEN, F. C., IBRAHIM, A., AND FERGUSON, A. R. *On the Treatment of Elephantiasis of the Legs by Lymphangioplasty.*

1. Osler in his usual clear and charming vein discusses high blood pressure. He first goes over the subject in general and then in detail takes up simple increased blood pressure, arteriosclerosis with high tension and associated cardiac and renal changes and finally chronic nephritis with arteriosclerosis and high pressure. Under treatment he urges first the careful consideration of the causes of the particular case of high blood pressure, next to lessen the intake as regards eating and drinking, third to increase elimination, and last to remember that drugs are of only temporary benefit in most instances and to use no drugs if the patient begins to get thin and feel badly.

2. Dilling describes a new method of calculating the dosage of drugs for children.

8. These articles are short and consider various topics dealing with their respective subjects. The titles are self-explanatory.

14. The writers do not believe that lymphangioplasty with the use of silk threads can be of anything but temporary value in effecting an improvement in elephantiasis of the legs. They drain the lymphatics for a short time but soon excite a definite cellular reaction which in fourteen to twenty-one days leads to the formation of dense and progressively contracting fibrous tissue. This walls off the thread and crushes off the adjacent lymphatics. [J. B. H.]

NOVEMBER 9, 1912.

1. *FLEXNER, S. *The Huxley Lecture on Recent Advances in Science in Relation to Practical Medicine. Some Problems in Infection nad Its Control.*
2. *LEES, D. B. *The Bradshaw Lecture on the Diagnosis and Treatment of Incipient Pulmonary Tuberculosis.*

THE BRITISH MEDICAL ASSOCIATION.

SECTION OF PATHOLOGY.

3. HALL, W. *Introductory Remarks by the President.*
4. *SMITH, J. L. *Discussion on Bright's Disease.*
5. MACLEAN, H. *Some Fallacies in the Routine Testing of Urine.*
6. WILLIAMS, O. T. *The Excretory Function of the Intestine and Its Relation to Disease.*
7. HORDER, T. J. *The Investigation of Puncture Fluids as an Aid to Diagnosis and Treatment.*
8. WILKIE, D. P. D. *The Association of Chronic Duodenal Ulcer with Morbid Conditions of the Ileum, Appendix and Colon.*
9. SHENNAN, T., AND PIRIE, J. H. H. *The Etiology of Dissecting Aneurysm.*
10. *BOLTON, C. *The Rôle of the Gastric Juice in the Pathology of Gastric Ulcer. With Lantern Demonstration.*

SECTION OF BACTERIOLOGY.

11. EYRE, J. *Discussion on Vaccine-Therapy.*
12. CRUICKSHANK, J. *On the Direct Cultivation of Tubercle Bacilli from Tuberculous Tissues.*
13. HOBE, E. C., AND PENFOLD, W. J. *A Study of the Pyrogenetic Properties of "B. typhosus."*
14. DEAN, G. *A Case of Pyaemic Actinomycosis with an Actinomycotic Endocarditis.*
15. BEATTIE, J. M., AND YATES, A. G. *The Variations in the Morphological Characters of Bacteria and Their Reaction with Sugars under Different Conditions.*
16. EMRYS-ROBERTS, E., AND WALSH, S. B. *Observations on Brownian Movement, with Special Reference to the Anthrax Spore.*
17. WHITMORE, A. *On the Bacteriology of an Infective Disease Occcrring in Rangoon.*

1. Cf. *Lancet*, Nov. 9, 1912.
2. Cf. *Lancet*, Nov. 9, 1912.

4. Lorrain Smith describes the pathological changes in the kidneys in various forms of Bright's disease; Zarkill considers the various classifications in use and gives one of his own.

10. Bolton has produced artificial gastric ulcers

in animals and experimented on them with different diets and different degrees of acidity and alkalinity of the gastric contents. When there was no loss of motility, a high degree of acidity had no effect on the healing process. When there was stasis, however, a high acid content seemed to retard the process of healing. [J. B. H.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 43. OCTOBER 24, 1912.

1. RITZ, H., AND SACHS, H. *Experiences in the Serodiagnosis of Syphilis.*
2. *BIERBAUM, K. *Salvarsan Treatment of Bacterial Infections.*
3. ECKERT. *Present Status of the Treatment of Diphtheria.*
4. RABINOWITZ, M. *Complement Fixation in Spotted Typhus with a Watery Extract of the Bacillus.*
5. MEYER, O. *Spontaneous Occurrence of the Rumpel-Leedes Phenomenon.*
6. KASEMEYER, E. *Post-traumatic Pachymeningitis.*
7. PERS, A. *X-ray Diagnosis of Colonic Adhesions.*
8. OHLY, A. *Procto-sigmoiditis.*
9. WIETING. *Treatment of Fractures and Contractions of the Lower Jaw.*
10. PELTESOHN. *Orthopedic and Surgical Treatment of Poliomyelitic Deformities in Children.*
11. BERGER, H. *Bone and Joint Transplantation.*
12. HILLENBERG. *Tuberculosis Problems and the Infection of Children.*
13. KORECK. *Thyreoidin in Hyperemesis Gravidarum.*
14. BORNSTEIN, A. *Oxygen Poisoning.*

2. On the basis of a large series of experiments with salvarsan, largely in cases of malignant pustule and erysipelas in animals, the author reaches the following conclusions:

It is possible to influence bacterial infection with salvarsan. This is best shown in cases of malignant pustule and erysipelas.

The explanation of the results is found in the work of v. Friedberger and Masuda, and of v. Boehncke, who found a general increase in the antibodies in the blood following the administration of salvarsan.

The fact that malignant pustule can be cured with salvarsan is not of great importance since there is an effective serum for the disease, but the results have increased interest when the influence of salvarsan on other conditions is considered.

Researches along this line are important, especially those dealing with the combined effects of salvarsan and sera. [C. H. L., JR.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 42. OCTOBER 15, 1912.

1. GOTTLIEB, R., AND OGAWA, S. *Absorption of Digitoxin from Digitalis Preparations and Its Relation to By-effects.* (*To be concluded.*)
2. *ALBRECHT, H. *Diffuse Gonorrheal Peritonitis.*
3. *HEIMANN, F. *Further Studies of the Effect of Anti-streptococcus Serum.*
4. DONATH, J. *Salvarsan and Combined Treatment in Syphilitic Affections of the Nervous System.*
5. FAVENTO. *Salvarsan.*
6. HECHT, A. *Medicinal Treatment of Tuberculosis.*
7. HEILBRONN, S. *Effect of Hypophyseal Extract in Child-birth.*
8. HOLMGREN, I. *Taking of Blood by the Schultz Method for Coagulation Tests.*
9. GOLBI. *Technic of Intravenous Injections.*
10. LEVY. *Technic of the Sauerbruch Operation for Excessively Large Herniae.*
11. SCHUMACHER, E. S. *Trephining or Puncturing the Sugar-loaf Skull for Relief of Pressure.*
12. Weil, L. *Preparations of Thyroid for Sterility.*
13. RÜBSAMEN, W. *Statistics of Congenital Defects of the Ulna.*
14. v. EGGELING, H. *Anatomical Findings in a Known Case of Eventratio Diaphragmatica.*
15. BIESELE, P. *Poisoning by Benzol-vapor.*
16. JANUS, F. *Particularly Deep Penetration of a Röntgen-apparatus for That Purpose.*
17. *DREYFUS, G. L. *Occurrence, Avoidance and Treatment of Neuro-recurrence.*

2. Albrecht reports a few cases of diffuse peritonitis due to gonococcal infection and confirms the statement of Döderlein that this lesion is characterized by stormy onset, and rapid but favorable course.

3. The findings of the writer will be of special interest to manufacturers of sera as well as to those who use this preparation. It is shown that the sera of both Aaronson and Höckst would protect mice against injections of streptococci which had been subjected to frequent passage through animals, but that it gave little protection against those recently cultivated from human lesions. Both of the above mentioned sera are made by injecting strains of streptococci which have been passed repeatedly through animals, and the question is raised as to whether such passage may not produce a profound change in the organism.

17. Dreyfus emphasizes the importance of thorough, combined treatment to prevent nerve-recurrence in syphilis and says that treatment should be pushed until not only the blood serum, but also the cerebrospinal fluid becomes normal. Lesions of the auditory nerve are the most common but are often overlooked as they may cause no subjective symptoms. In the presence of nerve lesions treatment should be begun with mercury and salvarsan should follow. Herxhimer's reaction occurs only in cases that have symptoms of nerve lesions. [G. C. S.]

No. 43. OCTOBER 22, 1912.

1. *KÜSTNER, O. *Extraperitoneal Caesarean-section.*
2. RIEDEL. *Partial or Complete Destruction of the Cystic and Common Ducts by Stone.* (*To be concluded.*)
3. BAHRDT, R. *Diagnosis of Gall-stones: Respiratory Organs and Cholecystitis.*
4. SIMON, J. *By-effects of Neosalvarsan.*
5. BUSSE, O., AND MERIAN, L. *Death after Neosalvarsan.*
6. SZAMETZ, L. *Salvarsan for Chorea Minor.*
7. KRETSCHMER, J. *Röntgenological Demonstration of the Effects of Diet on Peristalsis.*
8. KOLB, O. *A New Measure of Blood-pressure and Its Use at the Bed-side.*
9. KANSCH, W. *Warning against "Unbreakable" Catgut.*
10. DÜRING. *Pelvis-holder for Counter-extension for Leg Fractures Treated with Extension-bandage.*
11. ALTHOFF. *Treatment of Whooping-cough.*
12. RITSEHL. *A Simple Mechanical Means of Stopping Epistaxis.*
13. *GOTTLIEB, R., AND OGAWA, S. *Absorption of Digitoxin from Preparations for Digitalis, etc.* (*Concluded.*)
14. DONATH, J. *Salvarsan and Combined Treatment for Syphilis of the Nervous System, etc.* (*Concluded.*)

1. Küstner asserts that the future belongs to the extra-peritoneal method for Caesarean-section.

13. The work of the writers fully confirms the impression of clinicians that digipuratum is more quickly absorbed and less irritating to the stomach than are the infusions of digitalis or the powdered leaves. They differentiate two kinds of vomiting: first, that occurring within three hours of administration of the drug and caused by irritation of the gastric mucous membrane, and second, that beginning after six to seven hours, the result of absorption of excessive quantities. [G. C. S.]

ANNALES DE L'INSTITUT PASTEUR.

SEPTEMBER 25, 1912.

1. BORDET, J., AND DELANGE, L. *Coagulation of the Blood and Origin of the Thrombine (Fibrin Ferment). (To be continued.)*
2. *MARCHOUX, E., AND LOVEL, F. *Investigations on Leprosy. Leprosy in Rats.*
3. *BRIDRE, J., NEGRE, L., AND TROUETTE, G. *Investigations upon Lymphatic Epizootic in Algiers.*
4. BOUFFARD, G. *Existence of Canine Rabies in Haut-Senegal and Neger.*
5. HARRIS, D. L. *Investigations on the Properties of Rabic Virus Preserved in the Dry State.*

2. In 5% of the sewer rats in Paris is found the bacillus of Stefansky, which resembles the leprosy bacillus. The glands and usually the inguinal ones are chiefly involved. This disease can be inoculated from one rat to another by several methods. Although this disease is a specific one for rats, mice can be infected experimentally with the bacillus. This bacillus, like the human leprosy bacillus, invades the mesodermic cells and there multiplies rapidly. Cultures are rather easily obtained but die off very rapidly, so that they are hard to keep. In this article the authors take up a careful description of the lesions in the different parts of the body. They also describe their different methods of experimental inoculations.

3. These authors are reporting upon the results of their investigation upon a disease which occurs chiefly among horses and rarely among mules in Africa. The disease is due to a specific parasite and is a suppurating and ulcerative condition. It is of considerable importance due to the frequency of its occurrence. They describe the parasite. They find the disease is transmissible by direct inoculation without an intermediate host. It is not a parasite that exists only in leucocytes. It seems to be of the nature of a blastomycete. Also the use of "606" seems to be advantageous in the treatment of this disease. [C. F., JR.]

Miscellany.

RECENT DEATHS.

DR. WILLIAM ROSS BUSTARD, of College Point, Borough of Queen's, New York City, a graduate of the College of Physicians and Surgeons, Cleveland, Ohio, in 1901, died on Nov. 18. He was born in Ireland in 1867.

ARTHUR MACCABE, M.D., M.M.S., died at Gloucester, Mass., Nov. 12, 1912, aged 45 years.

DR. ANGUS MACODRUM, who died of pneumonia on Nov. 23 in Cambridge, Mass., was born at Mira, N. S., in 1865. After graduating from the Sydney (N.S.) Academy, he obtained the degree of M.D. from Jefferson Medical College in 1900. For the next two years he was resident physician at the Blakely Hospital, Philadelphia, and since that time had practiced his profession in Cambridge, where he was surgeon at the Cambridge Relief Hospital. He was a member of the American Medical Association, a Fellow of The Massachusetts Medical Society, and secretary of the New England Alumni Association of Jefferson Medical College. He is survived by his widow and by three children.

DR. WALTER HENRY TOBEY, who died on Nov. 23 in Boston, was born near Keeseville, N. Y., in 1848. In 1874 he graduated from the New York Homeopathic Medical College, and soon afterwards settled in Boston, where he continued the practice of his profession until his death. He was a member of the American Institute of Homeopathy, of the Massachusetts Homeopathic Medical Society, and a former president of the Massachusetts Surgical and Gynecological Society. He is survived by his widow, by two daughters, and by one son.

EXAMINATION.

The Civil Service Commission announces a competitive examination, open to all Boston physicians, to be held on Monday, Dec. 9, to fill the positions of assistants in the division of child hygiene under the Boston Board of Health.

APPOINTMENTS.

BOSTON BOARD OF HEALTH.—The appointment is announced of *Drs. William J. Brown, Gaetano Praino, William H. Robinson,* and *Thomas M. Shay,* of Boston, to be school physicians in this city.

ROBERT BENT BRIGHAM HOSPITAL.—The Trustees have recently appointed *Dr. Louis M. Spear,* physician-in-chief; *Dr. Edward P. Richardson,* surgeon; and *Dr. Charles F. Painter,* orthopedic surgeon to the hospital.

SOCIETY NOTICE.

AMERICAN SOCIETY FOR THE STUDY OF ALCOHOL AND OTHER NARCOTICS.—The forty-second annual meeting of the American Society for the Study of Alcohol and Other Narcotics will be held in the parlors of the Hotel Raleigh, Washington, D. C., Dec. 10 and 11, 1912.

SOCIETY NOTICE.

There will be a meeting of the New England Pediatric Society at the Boston Medical Library, at 8.15 p. m., on Saturday, December 14, 1912.

The following papers will be read:

I. Hexamethylamine and Formalin in the Urine in Childhood, Dr. Warren E. Sisson.

II. The Complement-fixation Test in the Management of Vulvo-vaginitis, Dr. George G. Smith.

III. Gastro-mesenteric Ileus, Dr. Charles A. Porter.

IV. Observations on Gastric Digestion in Infants, Studied by the Roentgen Ray, Dr. Maynard Ladd.

JAMES MARSH JACKSON, *President,*
FRITZ B. TALBOT, *Secretary.*

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, NOV. 23, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	10	1
Chicago	—	—	Waltham	6	2
Philadelphia	—	—	Brookline	7	—
St. Louis	—	—	Chicopee	8	4
Baltimore	—	—	Gloucester	4	1
Cleveland	—	—	Medford	4	—
Buffalo	—	—	North Adams	6	4
Pittsburgh	—	—	Northampton	6	1
Cincinnati	—	—	Beverly	2	—
Milwaukee	—	—	Revere	3	—
Washington	—	—	Leominster	2	—
Providence	—	—	Attleboro	3	1
Boston	212	39	Westfield	8	2
Worcester	38	10	Peabody	—	—
Fall River	27	11	Melrose	3	—
Lowell	37	14	Woburn	3	—
Cambridge	33	10	Newburyport	2	—
New Bedford	23	12	Gardner	4	1
Lynn	18	2	Marlboro	6	1
Springfield	26	5	Clinton	3	—
Lawrence	13	7	Milford	—	—
Somerville	25	6	Adams	2	1
Holyoke	24	5	Framingham	2	1
Brockton	13	3	Weymouth	—	—
Malden	—	—	Watertown	4	1
Haverhill	6	3	Southbridge	2	—
Salem	17	8	Plymouth	—	—
Newton	11	—	Webster	2	1
Fitchburg	9	4	Methuen	—	—
Taunton	12	3	Wakefield	—	—
Everett	6	—	Arlington	2	—
Quincy	—	—	Greenfield	11	—
Chelsea	14	3	Winthrop	1	—

Original Articles.

ALIMENTARY ABERRATIONS; THE ROENTGEN RAYS AS A FACTOR IN THEIR DIAGNOSIS.*

BY PERCY BROWN, M.D., BOSTON.

THOSE of us who are here gathered at the annual event of this hiatus in the humdrum of routine have lived, and are living, to see our profession undergo developments of profound moment and import. The older of you can well remember when each, as a medical practitioner, could hold up but one hand and enumerate upon the fingers of that hand his entire diagnostic assets, each finger corresponding to one of the five especial senses given him by his Creator. We, who are younger, cannot so clearly remember such an epoch, but we have heard of it, wondering the while what we should have done, or what sort of medical men we should have become, possessed of aids to our efficiency enumerated by the distal phalanges of but one hand and with the other hand tied behind us.

Here we stand, on the contrary, surrounded by laboratories filled with glistening vessels of the newer chemical re-agents, with microtomes and microscopes shining in the effulgence of a veritable rainbow of staining fluids, and we are weighted down with the knowledge necessary to discourage the mosquito and the house-fly in the very womb of their villainous careers. We are obliged no longer to resort to our sense of touch to entice the elusive fracture fragment; but, by worshipping for a while at the shrine of Vulcan, we can clamp it into place once for all with bonds of metal. Both hands are free to use the ultra-violet band of the spectrum for the purpose of recording photographically microscopical structures which, heretofore, not even the microscope could tell us of; hands free for manipulating the sources of the x-rays of Roentgen, by the action of which the integument of man no longer conceals his inner workings from the interested gaze of his fellows; and there is no one of the substances which he may naturally, or unnaturally, secrete from his body, about which he cannot have the most precise information within twenty-four hours!

Narrow-minded indeed is he who would carp at the advancement of scientific knowledge, yet such means as these for obtaining specific information may not be without their deleterious effect upon us as practitioners—as practitioners, let it be repeated. Our predecessor who possessed naught but his five senses had developed in him, through very necessity, traits and qualities as a medical man which we may be in danger of losing. Let us not, in our possession of the array of diagnostic implements which Science has given us, lose sight of those bequeathed us by Nature. In our dependence upon the former, although they are ours to use rightly, we may lose the keen ability of judgment and the acquired knowledge of human nature which actual need developed mightily in our medical ancestors.

Today, there devolves upon him who now addresses you the honor, much to be appreciated, of presenting the diverse aspects of an additional aid to our clinical insight into the alimentary tract. Many such have been devised for man's greater power of diagnostic skill in this fascinating anatomical field: the esophagoscope, the transilluminating power of electricity, the chemical determination of the character of the gastric and enteric secretions, the study of the intestinal form, the examination of the fecal constituents, *post dejectionem*, the sigmoidoscope and the proctoscope. The application of each of these methods is well recognized as a step forward, but each is physically limited to that portion of the alimentary tract wherein it is of greatest service. On the other hand, Roentgenology, apparently not yet content with her services to Medicine in other diagnostic fields, offers herself as a method applicable equally to the esophagus or the rectum, to the duodenum or the ileocecum. Any one will agree that the various meanderings of the alimentary canal, from the incisor teeth to the anal sphincter, constitute much food for scientific consideration, either anatomically or clinically. Accordingly, this structure can be claimed as a diagnostic stamping-ground equally by the medical man (in the narrow sense) or by the surgeon. Each has his own therapeutic function to perform. A diagnostic agent, to be efficiently used in every section or flexure of this canal must, therefore, be a broad one, and broadly to be presented and dealt with. It is meet, then, that such an exposition should be attempted before a gathering mixed as to its medical and its surgical training and practice.

No audience of the present year can fail to appreciate the fact that this subject, *per se*, is no longer a new one. Its growth and development have been so prodigious that, even after the few years of its life, we are prone to look back upon the earliest methods of its application as premature indeed. Without yet referring to the manner of today in the pursuance of a Roentgen examination of the alimentary canal, it may be merely interesting, in passing, to mention the pioneer attempts to determine the stomach's size, shape and position by means, for instance, of the shadow of a spiral wire inside a rubber tube inserted through the gullet; or by the generation of gas, likewise for observation by x-rays, within the stomach by means of the classical components of a Seidlitz powder separately swallowed. The only certain results, it would seem, of the latter procedure would be to make of one's patient an enemy for life! It may be supposed that little in the way of scientific result could be obtained by means of an indefinitely localized and comparatively unyielding, foreign body within the gastric viscus, or by the false limitations of

* Delivered at the meeting of The Massachusetts Medical Society, June 11, 1912.

the same organ inflated out of all semblance to its true size and shape.

Only such experiments as these, however, could introduce an entering wedge for the employment of a foreign substance so constituted, first, that it could be mixed, as if cognate, with the material given as food and therefore becoming in itself a component part of this food; and, second, that it had the power of absorbing x-rays to the extent that its presence could be seen easily on any record made by the physical effect of x-rays upon a fluorescent material or upon a photographic emulsion. Such a substance was fulfilled in the metal bismuth, the salts of which came to be recognized as the one substance of sufficient atomic weight to resist the passage of x-rays and thus to be opaque to them, and, at the same time, sufficiently inert to be given with food in the large quantities necessary for this purpose. Williams[1] reports the use of bismuth by him in 1898 and in May of that year a report of some observations on "The Movements of the Stomach Studied by Means of the Roentgen Rays" was made by Professor Cannon[2] of the Harvard Medical School, at that time a student in the school. This was but the first of a series of communications by this observer setting forth the results of his studies by the bismuth Roentgen method upon the physiology of digestion in some of the lower animals, chiefly the cat. It can be said, without qualification, that this work of Cannon is the bed-rock foundation of all that is accomplished today by this method with respect to human alimentation. It is constantly referred to by all writers upon the subject. While it shall be similarly quoted today, as a matter of course, there falls upon the author of this communication the privilege proudly of referring to these researches as the monumental accomplishment of a classmate and a friend. Cannon's pioneer efforts upon animals, besides quite inverting many theories as to the physiology of gastric and intestinal digestion, acted as the best sort of stimulation to similar knowledge with respect to the human subject. Some sporadic observations, by means of the bismuth method, had been attempted prior to 1904, but it remained for Rieder,[3] of Munich, to demonstrate what could really be done. This work was commensurate with his previous similar accomplishment with regard to Roentgen examinations of the thorax by means of momentary exposures upon plates, at a time when such a thing was considered nearly impossible. From Rieder, as well as Holzknecht[4] of Vienna, have come the greater part of Europe's share of the literature of the alimentary tract considered from the viewpoint of the worker in the Roentgen laboratory. As a practical clinician, however, no one has been more active in calling to his aid the Roentgen rays, and no one has drawn more sound conclusions from his observations thereby, than Arthur Hertz[5] of London. The greater part of Hertz's attention has been confined to the intestinal tract and he has contributed much upon the clinical subject of constipation. In our own country, many workers were filled with enthusiasm by the examples set by Rieder and Holzknecht, and chief among these who have added to the Roentgenology of this subject have been Hulst[6] of Grand Rapids, Pfahler[7] of Philadelphia, Cole[8] of New York and Skinner[9] of Kansas City. These men, to say nothing of others, have helped, each in his own way, to make gastrointestinal daignosis by this means a matter upon which the greatest dependence could be placed. As in any other subject, it may be supposed that much has been written upon which dependence cannot be placed and also, we may not quite agree with many statements made by those who have every right to be adjudged authorities. Nevertheless, each observer is adding little by little to the sum total of our knowledge, for the footing up of which, it is to be hoped, the time will never come. He who is ready, or says he is ready, to strike a grand total in the account-book of his activities, by the same act closes the record of his efficiency.

Before many attempts had been made to apply this method to the human gastrointestinal tract, the subnitrate salt of bismuth had been the one generally in use by experimenters, chiefly, it may be imagined, from its easy acquisition in the open market. It was early used by Cannon, and later by Roux and Balthazard[10] who were working at about the same period. Among investigators upon human subjects, however, tentative doses, for diagnostic purposes, brought forth results not so evenly favorable. "Rieder," reports Hertz, "found that an ounce could be administered without danger" but Böhme[11] gave an eighteen-months-old marasmic child 'several' grams by mouth and two doses later by rectum. Three hours after the second dose the child was seized with pain and diarrhea; he became cyanosed and dyspneic and died in half an hour." Erich Meyer[12] also reports a fatality from the same cause in 1898. Nowak and Gutig[13] mention a death in four hours after the exhibition of an ounce of the subnitrate of salt by rectum. Worder, Sailer and Pancoast,[14] working at the hospital of the University of Pennsylvania, report six cases in which alarming symptoms were observed, although without fatal ending. It was first thought, and so stated by early writers, that these untoward results were due to the presence of arsenic in an impure sample of bismuth salt. The fatal cases, however, were known to result after a chemically pure bismuth had been given and the symptoms described in the early literature so closely simulated those of poisoning by the nitrites that the observers at the University hospital were led to believe that their cases were due to the toxic effects of the nitrites produced by the combined effect of the gastric hydrochloric acid upon the subnitrate and the action of the alkaline secretion of the intestine upon the residue, with the

simultaneous production of oxycarbonate of bismuth and sodium nitrate, the latter being, however, converted into sodium nitrite.

In lieu of this deleterious salt, therefore, others have been offered as substitutes, and, as shown by the author before the Suffolk District Medical Society in 1909, none of them are wanting in ability to absorb x-rays to a sufficient degree. Of these substances, the more commonly used is, possibly, the subcarbonate which, although almost absolutely inert, is prone to affect the influence of the free acid in the stomach upon pyloric control, as Hertz asserts. Cannon has demonstrated that the question of acid pyloric control is an important one and his statements have been proven by clinical experiments in the human subject. We are strongly inclined to agree with Hertz to the extent that when the phenomenon of pyloric control is to be observed, we employ the oxychloride salt. Except for this, however, it is not especially needful. Unusually large doses of bismuth, given for diagnostic purposes, act, apparently, at cross-purposes to the classical physiologic influence of this drug, with the result that the alimentary movements scheduled by Roentgen rays are quite parallel with those in which the contents are unmixed with bismuth. This has been proven by Cook and Schlesinger,[15] acting upon Hertz's suggestion. The vehicles used for the support of the bismuth salt in the digestive tract are as many and diverse in nature as can well be imagined, ranging all the way from the classical *wismuth-mehlbrei* of Rieder to the plain suspension of bismuth in water. We feel, however, that the ideal test meal, even if it be considered as merely a support, should be one containing a fair proportion of proteid and of carbohydrate constituents. We cannot expect to gain consistent observations from a stomach which attempts merely to eject material of an absolutely non-nutritious nature, nor, on the other hand, should we shoulder a supposedly abnormal stomach with a digestive task which we would fain demand of it in health. Then, too, it is impossible to obtain any information with respect either to the normal capacity or the normal function of any digestive organ unless it is completely filled with the test meal. The amount of our information varies directly with the amount of food thus taken by the patient. These are matters, however, so manifestly technical that they ill become a communication endeavoring to deal with the clinical aspects of the subject in hand.

By his observations upon the movements of the stomach by means of x-rays, the account of which was published in 1898, Cannon established several facts. First, that it is a task practically impossible to form any correct conclusions as to gastric movements by the methods used prior to that time—by open incision and observation—under atmospheric influences, by observations through open incision under salt-solution, or by the method employed by Beaumont through the gastric fistula of Alexis St. Martin. In the second place, Cannon proved that the appearance of the living stomach was quite at variance with its form and shape as previously known and taught and he also showed that there was much to be learned about the physiologic movements of digestion exhibited by the stomach toward which his initial investigations paved the way so materially. Cannon arrived at these fundamental conclusions, to say nothing of others, by means of the bismuth method upon cats, as has been stated, through observing the action of the gastrointestinal structures upon the fluorescent screen. This technical method, hereinafter to be termed the "screen" is now well known to nearly everyone and deserves no descriptive mention. Suffice it to say that, for purposes of study of the moving stomach and bowels, it has never been superseded and its persistent use by Cannon acted as the sole stimulation for fluoroscopy of the human alimentary tract as today pursued.

A detailed description of the physiologic digestive movements of either stomach or intestine is unjustifiable here; first, because it would be but a poor repetition of the work already done and published by Cannon as to the lower animals and by Rieder with regard to the human subject; second, because no true exposition can be made of moving structures unless by the assistance of the fluorescent screen or by means of reliable Roentgen cinematographs, when these shall be made practically possible.

There are, however, one or two observations to be made with regard to the so-called anatomic stomach. Much discussion has been entered into by many European anatomists and Roentgenologists upon this question. Rieder's declaration that the preponderating diameter of the stomach is vertical, and therefore hook-shaped or siphon-shaped, was questioned by Holzknecht who, although he observed Rieder's form in eighty per cent. of cases examined, denied that this form represented normality. His conclusion was, that the normal shape of the stomach is that of the gently-sloping cow's horn or steer's horn. Amid such variance of opinion, unquestionably authoritative, one is often at a loss as to which turn to take along the road of enlightenment; the writer's observations, however, have led him to the theory that, abnormality aside, the form of the digesting stomach is governed, to a great extent, by the quality and quantity of its nervous stimuli. He has repeatedly observed the occurrence of the cow's horn type of stomach in individuals who are normally of the so-called nervous diathesis in whom the pulse-rate and temperature is normally increased, and in whom nearly every function is affected positively by increased nervous stimulation. Cannon recognizes the great influence of nervous stimuli upon gastric function which he has proven experimentally. In such cases where the cow's horn type is to be observed will also be seen evidences

of increased physiologic action, as exemplified in peristalsis. Cole of New York, observes, in the cow's horn stomach, appearances corresponding to the six- or seven-cycle type of peristalsis (in accordance with his nomenclature); in other words, peristalsis which is extremely active. The writer's observations, however, led him not to agree with Cole as to the great rarity of this type of peristaltic function.

As an introduction, however, to our remarks upon the Roentgen pathology of the stomach, we may be justified in presenting a series of records obtained by momentary exposures to x-rays of strong and vigorous stomachs, and of another at, say, hourly intervals after the ingestion of the bismuth test breakfast.

The Roentgen pathology of the alimentary tract, by which may be indicated those pathological problems in this region, the diagnosis of which the Roentgen rays may help to elucidate, are composed of situations both simple and complex; the more simple diagnostic problems may relate to the determination of the size, the shape and the position of the stomach and to that of the position and arrangement of the classical divisions of the intestines. Problems which may be considered as slightly less simple are those having to do with the determination of motility, or other evidence of peristaltic activity. Those more complex in nature are problems dealing with the diagnosis of some localized influences inhibitory to normal function; to wit, kinks, pressure-points, and other hindrances due to extrinsic causes such as adhesion bands and the like. Finally, the often very complex problems which are offered by the intrinsic lesions, of a nature either destructive or cicatrizing, which are often malignant and always seriously to be considered.

Abnormalities in the stomach's size, shape and position are presented to us as diagnostic problems of the first degree and, therefore, may well be first considered. It has been the habit of many clinicians to speak of a stomach as "large" or "dilated" without making especial reference to its shape, and, consequently, its position. As a matter of fact, the stomach is seldom to be called large, in the sense of an increase in all its dimensions; in fact, it varies so with the amount of its contents under normal conditions that he is daring indeed who would attempt to standardize its boundaries in all diameters. These simple cases are, of course, those which are not secondary to other conditions of more immediate importance such as carcinoma or ulcer cicatrix. They embrace the two great groups of splanchnoptotic abnormalities; on the one hand, those seen where the abnormal wall no longer gives the stomach, to say nothing of other organs, its proper support (a situation where in multiple pregnancy might prove to be of distinct influence). On the other hand, the cases wherein subjective symptoms are more commonly noted, all the way from a very tangible complaint of localized abdominal pain, to the limitless ephemera of neurasthenia. Here must also be mentioned the instances where such conditions seem to be more or less distinctly the result of the misuse of costume, especially the corset, although increased general enlightenment in such matters has tended to temper the inexorable mandates of Fashion. As a matter of fact, the true corset deformity, applied to the position of the stomach and colon, is much less often seen now than heretofore.

It is almost impossible to describe any one form of splanchnoptosis as occurring independently, since it is so frequently the case that more than one organ can be embraced at once under Glénard's[16] original classification. It has been the writer's experience that marked gastroptosis is seldom seen independently of the same tendency in the colon. There may be often an instance, on the other hand, where a very definite coloptosis may be unexpectedly seen in an intestinal canal receiving chyme from an energetic stomach, evidently normal in very way. In a consideration of these small abnormalities of size, shape and position of first, the stomach, it is well, for the sake of time, to deal collectively with gastroptosis and gastrectasis.

Such stomachs, as they become filled with food, are seen upon the screen not to offer the muscular resistance to the entering mass which can so well be seen in a stomach with normal mural strength. Here, on the other hand, the organ fills more like the bag that it is, and, as the weight of the contained meal grows greater, there is increased evidence that the tone of the stomach wall cannot cope with it. What then happens? The bulk of the food-mass slides down to that part of the stomach which, being the most dependent, allows it to lodge. It has not been embraced in the pars media by any peristaltic indentations which normally should grow deeper and stronger as the pylorus is approached; or, if any peristalsis is evident, it is so weak that the pressure of the ever-increasing food-mass seems almost to overpower it.

As has been strongly suggested, and even put forward as the basis of argument, this heavy test-meal, composed, in part, of a metallic salt, would necessarily affect any stomach by its weight and bulk so that the appearance of ptosis may be falsely revealed. In answer, we may say that the weight of the average Rieder meal is close to two hundred and forty grams. This weight is not in excess, surely, of that of food consumed by a normal human being more than once a day! Moreover, we have already seen today how actively and efficiently the normal stomach attacks this meal of two hundred and forty grams. There is, apparently, no basis for such contention.

While a demonstration of these more simple conditions of the stomach is, by x-rays, determinable at a glance, they may present appearances at certain stages in the alimentary phe-

nomena which are closely in accord with those seen in pathologic conditions of much greater moment. The most important, possibly, of these appearances is that of the evidence of residue—residual bismuth remaining in the stomach after the lapse of an empirical interval allowing, say, six hours to elapse, as a fair interval of time in which the stomach may empty itself. We shall get the Roentgen evidence of residue in the following conditions based, of course, upon either a deficiency in the peristaltic driving-power or the presence of an inhibitive influence at the portal of exit—the pylorus:

a. Esophegeal delay (not constant).
b. Gastroptosis with atony (not constant).
c. Gastrectasis (not constant).
d. Carcinoma pylori (constant).
e. Gastric ulcer callous or cicatrizing (generally constant).
f. Old ulcer in the lesser curvature of the pars media (generally constant).
g. Old ulcer of the lesser curvature of the pars pylorica (generally constant).
h. Old pyloric stenosis due to ulcer or carcinoma on an old ulcer base (constant).

Holzknecht, who has carefully classified these instances in which residue occurs and even tabulates the shape of the residue with regard to its pathological significance, says, that a residue, after six hours, points indubitably to an organic obstruction at the pylorus. In so far as his observations have as yet shown him, the writer cannot quite agree with this literal statement. He would qualify his disagreement, however, by saying that, in a case of a nature apparently atonic, a residue after six hours would lead him to be extremely circumspect as regards the pylorus and to seek further evidence as to its patency.

These gastric conditions of ptosis and ectasis, together with the same situations involving the large intestine, have become of much clinical importance during the past few years. The day is past when nephroptosis was the most important subdivision of the pathological complex described by Glénard, especially from the surgical point of view. There has been a great deal of therapeutic good already done both surgically and medically through the information obtained by the rational and intelligent employment of the Roentgen rays diagnostically in this subdivision of Glénard's disease.

(To be continued.)

THE PREVENTION OF WATER-BORNE DISEASE IN LAKE AND RIVER TRAFFIC.

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To prevent the spread of water-borne diseases in lake and river traffic it is necessary to keep sewage-polluted water out of reach of the passengers and crew. The difficulty in effecting this may be appreciated in considering the sources of supply available for use. What are the sources of water supply available for the use of passengers and crew? These may be classified as follows:

1. The lake or river itself.
2. Water tanks of the vessel.
3. Public water supply at ports of call.

RIVERS AND LAKES AS SOURCES OF SUPPLY.

The rivers and lakes used as highways of commerce are usually polluted to such an extent that their use in the raw state for drinking purposes is decidedly dangerous. The water of any of our navigable rivers is probably unfit for drinking without purification throughout its entire navigable length. The water in the Great Lakes because of the enormous storage is relatively pure at considerable distances from shore.

CHARACTER OF THE WATER OF LAKE SUPERIOR.

The water of Lake Superior is of excellent quality and safe for drinking purposes if it can be drawn from a point beyond the zone of pollution which surrounds the water front of the cities. Even here, however, the zone of pollution varies with the effects of storm and flood and of winds and currents, so that to be sure every day in the year of being outside of the ever-changing boundary of this polluted zone it would be necessary to go considerable distances from shore. In this deep lake the placing of such an intake would often present engineering difficulties and necessitate expenditures which would be in excess of the cost of other methods of rendering the water safe.

LAKE HURON AS A SOURCE OF WATER SUPPLY.

As a source of water supply Lake Huron is ideal. Its enormous storage capacity insures storage for years of the amount of water flowing into it. In other words, if all inflow were stopped it would take years for this great basin to empty itself by losing daily the present average daily flow through its only outlet, the St. Clair River. This fact of enormous storage, with the sedimentation and great dilution afforded, narrows the question of sewage pollution to one of local significance so far as Lake Huron is concerned.

Owing to the enormous volume of water in Lake Huron and to the small size of the communities situated thereon sewage pollution does not alter the general quality of the lake water, except for a few miles in the vicinity of the sewer outfalls. The sewage of the cities in the Saginaw Valley constitutes an exception. The polluted Saginaw River, emptying into Saginaw Bay, renders the waters of Saginaw Bay unfit for drinking purposes without treatment or filtration. This pollution at certain seasons would be evident because of currents and the shallowness of the bay for many miles. Outside of Saginaw Bay and Thunder Bay, in the vicinity of

Alpena's sewers, the water of Lake Huron receives only a negligible quantity of pollution, and should be of excellent quality.

LAKE MICHIGAN AS A SOURCE OF WATER SUPPLY.

Lake Michigan is 307 miles long and has a maximum width of about 118 miles. The maximum depth is 870 feet. The storage capacity is enormous, and its power to oxidize and purify organic matter can scarcely be overestimated. The effect of storage of Lake Michigan water is accentuated by the comparatively small outflow (an average of only 57,000 cubic feet per second through the Straits of Mackinac). For example, compared with Lake Huron, the area of water surface is nearly the same—over 22,000 square miles—and the maximum depth in Lake Michigan is about 100 feet deeper than that of Lake Huron. The outflow of Lake Huron at Port Huron is about 210,000 cubic feet per second, while the outflow from Lake Michigan is only about one-fourth as much. This means longer retention of polluted inflow from rivers and sewers and more opportunity for purification before discharge through the Straits at Mackinac. It would take Lake Michigan many years to empty itself at its present rate of outflow if all inflow were prevented. Under these circumstances the quality of Lake Michigan water must be good, provided we can get it far enough from the polluting inflow of rivers and sewers. Unfortunately, the zone of polluted water extends a considerable distance out into the lake from the water fronts of the cities and the mouths of the large rivers, and this zone of pollution has no constant boundaries because of currents due to wind and flood, but extends under unusual weather conditions far beyond the point which seems safe in quiet weather.

LAKE ERIE AS A SOURCE OF WATER SUPPLY.

The importance of Lake Erie as a source of public water supply cannot be overestimated. At present there is an urban population on the United States shore of a million and a half of people. The density of population is bound to increase, and scarcity of other adequate supplies makes the adjacent population dependent upon the lake for water supplies for all time to come. Lake Erie contains 17,500,000 million cubic feet of water, which affords storage for the water discharged into it for about 920 days.

This great natural reservoir, with capacity for 920 days' storage, assures a high degree of purification by natural agencies, such as dilution, aeration and sedimentation, besides affording the storage time necessary to permit of the natural death of pathogenic bacteria. The ability of the natural agencies operating in the lake to render sewage innocuous is very great, so that water at the center of the lake is comparatively pure.

Where the sewage in great quantity is poured into the lake, especially near the mouths of rivers upon which large cities are situated, the zone of polluted water is wide and a greater distance toward the lake center must be traversed before pure water is secured. With the growth of urban populations on the lake shore, this zone of polluted water is continually widening, and waterworks intakes have been repeatedly moved farther out to secure better water. In the danger of polluted water entering waterworks intakes there is another factor besides the ever-widening zone of polluted water, viz. the action of currents, which renders the boundaries of the polluted zone extremely variable.

LAKE ONTARIO AS A SOURCE OF WATER SUPPLY.

Although Lake Ontario is the smallest of the Great Lakes in superficial area, it contains a much greater volume of water than Lake Erie, because of its greater depth. The maximum depth of Lake Ontario is 738 feet. The area of the water surface is 7,243 square miles. Allowing an average depth of 250 feet, the storage capacity of the lake would be 50,480,812,800,000 cubic feet. The discharge from the lake by the St. Lawrence River is about 250,000 cubic feet per second, or 21,600,000,000 cubic feet per day. At this rate of discharge, Lake Ontario would require 2,337 days or over six years to empty itself if all inflow were stopped. This is a conservative computation and it may be reckoned that given proportions of water contributed to the lake at the western end will have the benefit of over six years' storage before making their exit into the St. Lawrence River. This means that the water in Lake Ontario is capable of purifying an enormous amount of organic matter and that with the existing pollution the water should be pure outside of the zones of pollution surrounding the water fronts of cities and the mouths of large rivers.

The connecting rivers between the Great Lakes are all polluted by sewage, and their currents and length are such that natural purification is ineffective and does not render them safe as sources of supply without further treatment.

It will be apparent at once that water taken from the rivers without treatment is unfit for drinking purposes, and safe water can be consistently obtained from the lakes only by avoiding the shore pollution. This necessitates taking water many miles from shore, as the boundaries of the shore pollution are very variable owing to winds and currents.

It is a very difficult matter to restrain ignorant or careless individuals from drinking unfiltered surface water and numbers of the crew, and sometimes passengers on our river and lake steamers have no hesitancy in drinking water direct from the river or from the lake within a few miles of shore. These people cannot be restrained by law or regulation. The only remedy is a campaign of education showing the dangers of untreated surface supplies.

WATER TANKS OF VESSELS.

The water tanks of vessels may and often do contain polluted water. The river steamers often carry water obtained at some of the ports of call or may fill their tanks from the river itself. The lake steamers may secure their supplies from ports of call, but frequently take their supplies from the lake itself. They usually fill their tanks while in midlake where the water is comparatively pure. That they do not always do this is attested by at least one very serious outbreak of typhoid fever on a lake steamer.* It is said that this vessel filled its tanks in the Detroit River not far below the city of Detroit. If we permit the custom of filling tanks in midlake we must necessarily place implicit trust in the ships' officers. This has resulted in disaster, as cited above, and we never know when it may occur again, either due to ignorance or carelessness.

Another danger exists in the use of foul sea cocks and pipes. The great danger from this source was pointed out by Surgeon J. O. Cobb† of the U. S. Public Health Service.

It is frequently the custom to use the same system of sea cocks and pipes for drawing the polluted water from harbors and rivers while in port and for filling the water tanks in midlake.

PUBLIC WATER SUPPLIES OF PORTS OF CALL.

Not only are the public water supplies of ports of call frequently the source of supply for vessels, but they are also furnished to the interstate visitors who land in such ports.

In regard to public water supplies, the conditions which make disaster possible where the source of public water supply is polluted are two, viz.:

1. Failure to purify.
2. Inefficiency of the purification.

The failure to install a purification plant is usually due to an undue confidence in a water supply which is safe "most of the time." It is difficult for some officials to understand, without a severe lesson, that it is not sufficient to have a water supply that is safe for 360 or 361 days in the year, and to these officials it seems scarcely justifiable to require expensive purification for the sake of the four or five days in the year during which, due to weather conditions, pollution may take place. Such a supply with a favorably placed intake, may escape pollution for more than a year. There was no evidence of serious pollution of the water supply of the city of Erie during the year 1909, yet the appalling disaster of January and February, 1911,‡ showed that pollution could take place under certain weather conditions.

There is also too much confidence placed in unfiltered surface supplies from inhabited watersheds. Even where there is alleged control of the watershed and ample storage, pollution may occur. In regard to unfiltered surface supplies, the need of bacteriologic control is very evident. Dangerous pollution may be present only for a few days or for a few hours. The bacterial count per cubic centimeter is valuable, but the quantitative estimation of B. coli is of far greater importance. A low count does not necessarily imply a safe water, but a low count, coupled with absence of B. coli, may be considered an index of safety.

In Europe surface supplies are almost invariably filtered, and eventually such supplies in America will be treated or filtered.

Poor filter efficiency is often responsible for disaster in the shape of typhoid outbreaks and may be due to several causes. The slow sand type may give poor filter efficiency when sufficient extra units are lacking, necessitating excessive rates and placing of "green" filters in service. Excessive rates, to little coagulant, insufficient sedimentation capacity, and insufficient storage are common operating and structural faults of the mechanical type. Sometimes a properly constructed plant is struggling with a raw water which has a high bacterial content and even with fair filter efficiency yields an unsafe effluent. Probably the greatest single cause of a poor effluent from filter plants is inefficient operation by unskilled men. It is absolutely essential for good results that bacteriologic examination, including B. coli estimation, be made at least once daily, and in slow sand plants from each unit separately.

The man in charge must be able to do this. In mechanical filter plants or with hypochlorite plants he must also have the necessary skill to adjust his chemicals with nicety according to the changes in the raw water. With such a man in charge of a properly constructed plant a safe effluent is assured at all times. When struggling with a bad raw water he will use hypochlorite as an adjuvant with good results. He will study the peculiarities and fluctuations of the constituents of the raw water and adjust his treatment accordingly.

The most serious defect in sanitary control of our water supplies is the lack of proper daily bacteriologic examination of the water and quantitative estimation of the B. coli content. In some of the lake cities there is proper daily bacteriologic examination of the water supply, but in many of them there is either an imperfect examination or none at all. One city with a slow sand filter plant of three units and a consumption equal to the safe filter capacity of the beds operates these without rest, putting the units in service "green" and with an occasional examination of the water once or twice a month. One of the largest lake cities using an unfiltered supply exposed to sewage pollution makes a bacterial count daily, but restricts its effort to detect

* Whipple, Geo. C.: Typhoid Fever, page 179.

† Cobb, J. O.: Water Contamination Aboard Ship and Its Prevention. Journal American Medical Asso., 1909, vol. liii, page 2057.

‡ Hygienic Laboratory Bulletin 77, page 98.

sewage pollution to the antiquated and indefinite test of inoculating a guinea-pig occasionally with a small portion of a broth culture.

The significance of polluted water supplies in large industrial centers from an interstate standpoint is enormous. Trains and steamboats take their water supplies at such points and this polluted water is drunk by the passengers throughout the trip. Common carriers in interstate commerce also contribute to the spread of typhoid in interstate traffic by failure to have their railroad trains and steamboats provided with retention tanks for excreta. Human excreta may in this way be deposited in streams used as water supplies or in lake water in the vicinity of waterworks intakes.

Excessive prevalence of typhoid fever in any city which by reason of its commercial or industrial importance attracts large numbers of visitors has an important bearing upon the spread of typhoid from one state to another. The same is true of other cities which because of great natural advantages, the beauty of their surroundings, or other reasons attract thousands of tourists and visitors from other states. For these reasons the prevalence of typhoid and the character of the water supplies in cities like Pittsburgh and Detroit, Niagara Falls or Mackinac Island become a matter of serious moment from an interstate standpoint. The excessive prevalence of typhoid fever for years in Niagara Falls and Pittsburgh was not only a matter of local or even state concern, but a grave national danger as well.

The drinking water tanks of vessels should have no connection with the sea cocks and piping used to draw water for other purposes. It is feasible to use condensed steam for drinking purposes and if this system is not installed vessels should be required to fill their water tanks from municipal supplies which have been certified as safe.

The sources should be certified to by a federal officer or by a state or municipal officer. If inspection is made by state or municipal officers, they should certify that the source conforms to United States standards.

RECAPITULATION.

To prevent water-borne disease in lake and river traffic it will be necessary to proceed along the following lines:

1. Popular education is necessary to prevent drinking of unpurified surface water.
2. Public water supplies in communities engaged in interstate traffic should conform to United States standards.
3. United States standards should be based upon the bacterial count and the quantitative estimation of B. coli and should be the minimum requirements to prevent the spread of disease, such as typhoid fever or Asiatic cholera in interstate traffic, the various states retaining the right to impose additional requirements, consistent with state laws where such laws exist.
4. United States regulation is necessary, requiring vessels engaged in interstate traffic to fill their water tanks with distilled water or from public water supplies certified as safe and conforming to United States standards.
5. Inspection of vessels by United States officers and by state and municipal officers duly qualified to enforce this regulation.

ARTERIOSCLEROSIS PROBABLY NOT AN IMPORTANT FACTOR IN THE ETIOLOGY AND PROGNOSIS OF INVOLUTION PSYCHOSES.*

BY G. L. WALTON, M.D., BOSTON.

ARTERIOSCLEROSIS without gross lesion of the brain should not be too readily accepted as a cause of symptoms. In a previous communication the writer, in collaboration with Dr. Paul,[1] reported a series of marked arteriosclerotics showing prevalence of vertigo, apoplectiform attacks, and progressive loss of memory, but nothing to suggest that headache, insomnia, irritability or other evidence of psychosis resulted from this condition. This finding was somewhat at variance with the prevailing view, but subsequent observation has revealed nothing to modify our opinion.

The association of cerebral arteriosclerosis with the involution psychoses, and even with manic-depressive insanity irrespective of type, is mentioned by various authors (Albrecht,[2] Pilcz,[3] Schreiber,[4] Neisser,[5] Stransky[6]), whether with the implication that it is to be regarded a causal factor, or, as Albrecht contends, generally rather a resultant of the emotional disturbance. Again, writers on arteriosclerosis have mentioned the appearance of agitated depression and the like, Alzeheimer,[7] however, with scientific fairness adding that he is uncertain whether the arteriosclerosis should be regarded as a causal factor or as a mere coincidence. It is in the hope of throwing further light on the question that I have studied from the clinical point of view the cases which form the basis of this communication.

That there is no unanimity of opinion on the subject is shown by the fact that DeFursac[8] mentions lowering of blood pressure and a small compressible pulse among the symptoms of the anxious melancholia of involution, and that Alexander[9] finds the blood pressure lowered in chronic melancholia, unaltered in simple melancholia, increased in the "acute passive," and less so in the "acute demonstrative," type. Occupying a middle ground, Whitney,[10] in a recent communication, reported ten cases of involution-depression in which peripheral arteriosclerosis was found, but a low blood pressure.

* Read at the meeting of the American Neurological Association, May, 1912.

He concluded that there was no causal relation between the arterial and the mental conditions. This conclusion is apparently shared by Barrett,[11] since he does not mention the psychoses in his list of mental troubles associated with organic brain disease, and with that of Robertson,[12] who states that "melancholia. . . is not accompanied by any definite pathological changes. It is apparently the result of a functional disorder of those cell-complexes which subserve the production of painful emotions in health, and the exact cause of this is unknown."

One who has occasion to observe a large number of old people with pipe-stem arteries cannot fail to note the large number in which the intelligence is practically unimpaired and the emotional condition practically unaltered up to the time of the final shock, and to such a one the thought must occur that the connection between arteriosclerosis (without gross lesions) and mental symptoms is not so close as is often assumed. Southard's report[13] of fourteen cases of autopsy in senile dementia with neither arteriosclerosis nor atrophy suggests that even senile dementia may not be so closely allied to hardening arteries as is generally supposed.

For the purpose of this study I have selected 100 cases (75 females, 25 males) of that phase of manic-depressive insanity known as involutional, the ages ranging from 44 to 82, averaging 59. the patients presenting marked depression, often with agitation, with self-accusation and with somatic delusions.* The cases were examined at the McLean Hospital for the Insane, at the State Hospitals for the Insane at Danvers, Boston, Northampton and Tewksbury, and at the Medfield State Asylum, for which opportunity I have to thank the superintendents of these institutions, Drs. Tuttle, Mitchell, Frost, Houston, Nichols and French.

It goes without saying that no amount of clinical investigation establishes the degree of cerebral arteriosclerosis in a given case, but if a large number of cases be examined with reference to palpable arteries, blood pressure, accentuation of the aortic second sound, renal disorder, cardiac dullness, apoplectiform attacks and the like, certain inferences can be drawn regarding the extent to which the brain is likely to have been invaded. Provided these inferences are conservatively drawn, such a clinical study is worthy of consideration as well as pathological examination, especially since the latter, as stated by Alzeheimer, can tell us nothing more than that the conditions sometimes coincide, not enough to justify a conclusion regarding causal relationship.

The systolic pressure was taken in these cases, the instrument used being the Rogers "Tycos" sphygmomanometer. Beyond obviously needful precautions no effort was made absolutely to unify conditions, thus, no note was taken of time of day, condition of bowels, ingestion of food or common drugs and the like, observations essential to such investigations as those of Craig[14] which have to do with the moderate (10 to 20 m.m.) variations in the same patient's blood pressure under varying conditions. In a long series of cases such factors offset each other sufficiently to justify neglecting them in studying so general a proposition as whether, on the whole, indications point to prevalence of cerebral arteriosclerosis. For a similar reason no attempt was made to divide the cases into such groups as were selected by Alexander.[9]

For convenience of reference the results were divided into three classes. In the first class were placed those with decided evidence of arteriosclerosis either in the form of marked palpability of peripheral arteries, of high blood pressure, of accentuated aortic second sound, cardiac enlargement, interstitial nephritis, or all combined. To give the benefit of the doubt to arteriosclerosis, any blood pressure over 160 was called high. In the second class were placed those presenting either moderate arterial thickening, a blood pressure of 140 to 160, or both. In the third class were placed those with no peripheral evidence of hardened arteries, and a blood pressure not exceeding 140. Whether this somewhat arbitrary classification is a wise one is not of material importance so long as it is followed also in the control series. The reason for selecting 140 m.m. was that a pressure below this in a person over middle age is hardly suggestive of arteriosclerosis, however important it may be, for other purposes, to note variations of pressure under this point.

For a control, 100 cases of approximately the same ages (the average being 58, one year younger) and under approximately the same conditions (including sex) were examined. Still further to give the benefit of the doubt to arteriosclerosis, in the control cases care was taken to eliminate those with such conditions as cardiac or renal disease, and apoplectiform attacks with or without hemiplegia and to exclude senile dementia, even though the acceptance of arteriosclerosis as cause of senile dementia is not always unqualified (see Barrett, loc. cit.). The results may be tabulated as follows:

	Class I. No palp. arts. bl. pr. under 140.	Class II. Suggesting moderate arteriosclerosis.	Class III. Suggesting marked arteriosclerosis.
Invol. Psych.	66	20	14
Control	58	27	15

Among the depressed cases were 20 (12 female, 8 male) with a blood pressure of 120 m.m., or under, practically the same result as in the control, in which there were 22, all females.

In short, there was no more clinical evidence of arteriosclerosis in the psychosis series than in the control cases.

* Delusions regarding the bodily organs and their functions. These take ofterest the direction of negation; such patients have no stomach, no intestines, or if they do nothing passes them; they have no heart or arteries, or if they do they contain no blood; they are microscopic; they are about to die, in one case the patient believed he had already died.

The only conclusion I can draw from these findings is that arteriosclerosis is probably a negligible factor in the class of cases under consideration, leaving the burden of proof on those who assume that in such cases this lesion is present in the brain, though not discoverable elsewhere in the body.

Furthermore, so large a proportion of the cases fell in the chronic and hopeless class as to make it extremely doubtful if the presence of arteriosclerosis should weigh heavily in the prognosis, especially when coupled with the fact that cases do occur in which the mental depression has disappeared in spite of marked arteriosclerosis. It is with hesitation that I venture this opinion in the face of Krâpelin's dictum, based on the fact that numerous examples speak for the early appearance of arteriosclerosis, and the fact that the symptoms sometimes first appear after a stroke, evidence not, after all, conclusive unless checked by control observations. My conclusion is also somewhat at variance with the opinion of Robertson, who, while not regarding arteriosclerosis as a cause of the disorder, mentions, in connection with the prognosis of involutional melancholia, the frequent presence of arteriosclerosis and other organic diseases.

Aside from the question of the prevalence of arteriosclerosis in the involutional form, it has been noted that the blood pressure of individuals with manic-depressive insanity is higher during the depressed than during the exalted state. Dr. Abbott of the McLean Hospital tells me that in a series of such observations he found the blood pressure from 10 m.m. to 20 m.m. higher in the morning depression than in the evening remission, a finding in practical accord with that of Dunton and of Craig (loc. cit.), who regard the higher blood pressure as causal, while Alexander attributes it to the retention of waste products of metabolism resulting from the depression and Sheldon[16] thinks the emotional change itself may raise the pressure, citing its elevation in one case after the patient was informed that it was already high. In this connection I would also call attention to the fact that agitated and apprehensive patients are apt to harden the muscles of the arm, thus causing a higher reading than the blood pressure itself would justify. This was impressed upon me by one case, examined early in the series, in which the first reading was 140, the second 130 and the third 120. In casting about for an explanation of this apparent change of blood pressure within a few moments, I remembered that muscular rigidity, at first present disappeared as the harmlessness of the test became evident to the patient, in other words, whereas in the third of the three observations I was measuring the blood pressure, in the first and second I was measuring also muscular resistance. Indeed, this rigidity is occasionally so intense as practically to render the readings valueless unless relaxation supervenes. When this fact is taken into consideration it is all the more striking that the readings in the depressed series here reported were so moderate. But to this aspect of the question I have not paid special attention, having carefully limited the investigation to the question of arteriosclerosis, regarding which I have drawn the following conclusion:

Arteriosclerosis probably plays an unimportant part, if any, in the causation of involution psychoses and, when present, has probably little, if any, bearing upon the prognosis.

[1] Jour. Amer. Asso., Jan., 1908, vol. 1, p. 169.
[2] Allgemeine Zeitschr. f. Psychiat., 1906, 63, p. 402.
[3] Monatshefte f. Psychiatrie u. Neurologie (Ziehen) 1900, Bd. 8.
[4] Archiv. f. Psychiatrie, 1901, Bd. 34.
[5] Psychiatr.-Neurol. Wochenschrift, 1901-2.
[6] Monatshefte f. Psychiatrie u. Neurologie (Ziehen), 1902, Bd. 11.
[7] Centralbl. f. Nervenheilkunde u. Psychol., June 15, 1902, pp. 399-412.
[8] Manual of Psychiatry, 1908, p. 303.
[9] Lancet, 1898, vol. 1, p. 1742.
[10] Read at meeting of New England Society of Psychiatry, March 28, 1912.
[11] American Journal of Insanity, vol. 62, no. 1, p. 37.
[12] Journal of Mental Sciences, July, 1911, vol. 62, no. 262 (new series).
[13] Read at meeting of New England Society of Psychiatry, March 28, 1912.
[14] Lancet, 1902, vol. ii, p. 18.
[15] Boston Med. and Surg. Jour., 1903, vol. cxlix, p. 422.
[16] Med. Rec., Feb. 13, 1912.

HEREDITY: WITH ESPECIAL REFERENCE TO THE LAW OF GREGOR JOHANN MENDEL, O. S. A.

BY JOHN M. CONNOLLY, PH.D., M.D., LL.D., BOSTON,
Visiting Physician for Children, Mt. Sinai Hospital.

(*Concluded from page* 799.)

Let us now consider a few of the applications of Mendel's law to human beings. A study of the curious deformity of brachydactyly shows that its inheritance is clearly in accordance with Father Mendel's law. Dr. Drinkwater has carefully traced the peculiarity among the members of one family and has given us the following pedigree.

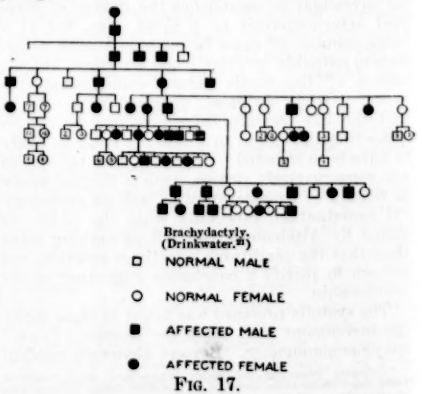


FIG. 17.

It will be noted that all affected individuals have an affected parent; that none of the un-

affected individuals, though sprung from the affected, ever have descendants who are affected; and that in families where both affected and unaffected occur, the members of the two classes are on the average equal. In other words, brachydactyly behaves as a simple Mendelian dominant to the normal form, and the recessive normals cannot transmit the affected condition whatever their ancestry. Once free they are always free, and can marry other normals with full confidence that none of their children will show the deformity.[21]

Among the most interesting of all human pedigrees is one published by Nettleship of a night-blind family living near Montpelier in the south of France. In night-blind people, as you know, the retina is defective, not being sensitive to light which falls below a certain intensity, and such people are consequently blind in failing daylight or in moonlight. The disease frequently results in total blindness in later life. As the Montpelier case had excited interest for some time, the records are unusually complete. They commence with a certain Jean Nougaret, who was born in 1637, and suffered from night-blindness, and they end, for the present, with children who are today but a few years of age. Particulars are known of over 2000 of the descendants of Jean Nougaret. Through ten generations and nearly three centuries the affection has behaved as a Mendelian dominant and there is no sign that long continued marriage with people of normal vision has produced any amelioration of the night-blind state.[21] But here again "once free, always free."

The same principle is illustrated in the following pedigrees of retinitis pigmentosa and hereditary optic atrophy, in which the inheritance is obviously Mendelian.

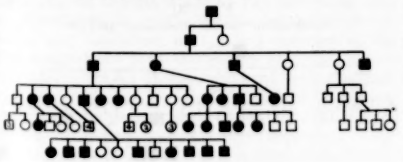


FIG. 18.

Retinitis Pigmentosa.
(Nettleship, Royal London Ophthalmic Hospital Reports, Vol. xvii, p. 1.)

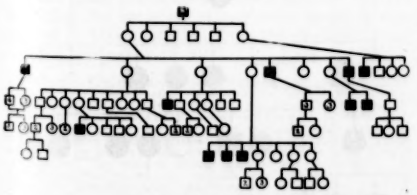


FIG. 19.

Hereditary Optic Atrophy (Leber's Disease).
(W. Ilbert Hancock, Royal London Ophthalmic Hospital Reports, Vol. xvii, 1908, p. 167.)

A group of cases of exceptional interest is that in which the incidence of disease is largely, if not absolutely, restricted to one sex, and so far as is known the burden is invariably borne by the male. In the inheritance of color-blindness, for instance, the transmission is according to the following scheme; which explains the fact,

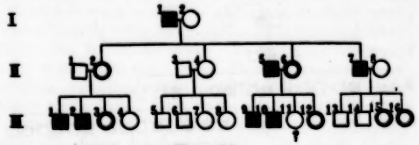


FIG. 20.

Method of Inheritance of Color-blindness.
(Davenport.[22]) (Heavy circles represent females capable of transmitting the condition.)

which we have often had occasion to observe, that color-blindness is much commoner in men than in women. A color-blind man, however, does not transmit color-blindness to his sons, but only to his daughters. The daughters, however, are themselves normal providing the mother was, yet they transmit color-blindness to half their sons. A color-blind daughter could be produced, apparently, only by the marriage of a color-blind man with a woman who transmitted color-blindness, since the daughter to be color-blind must have received the character from both parents; whereas the color-blind son receives the character only from his mother; but a color-blind woman's sons will all be color-blind. It looks, therefore, as though color-blindness were due to the presence of an extra Mendelian factor as compared with the normal, and that a single dose of it will suffice to produce color-blindness in the male, but a double dose is required to produce it in the presence of the factor for femaleness.

In the peculiarly male disease, hemophilia, which Grandidier calls "the most hereditary of the hereditary diseases," the inheritance in its general trend is not unlike that of horns among sheep and it is evident that we are here dealing with a character which is dominant in one sex, recessive in the other.

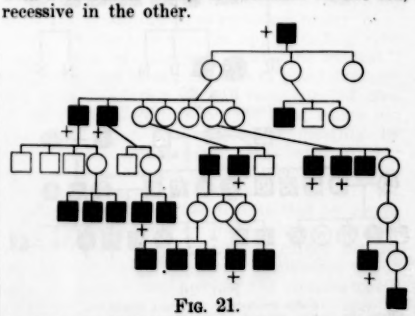


FIG. 21.

+ indicates a death *from the disease.*
Haemophilia.
Appleton-Swain Family, Reading, Mass.
(After Pratt, in Osler's System.)

Here are other pedigrees showing polydactylism, split-foot, Huntington's chorea, deaf-mutism, feeble-mindedness, twins, ichthyosis, and others, concerning which space is wanting for more than passing notice. I wish merely to say that a study of the charts shows that all of these affections clearly Mendelize.

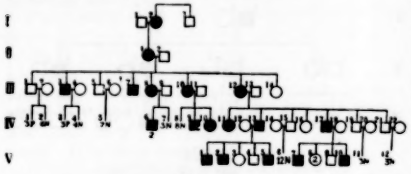


FIG. 22.
Polydactylism (Lucas, 1880).[22]

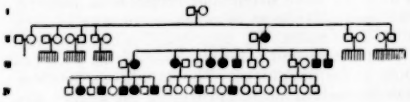


FIG. 23.
Syndactylism, "Split-foot" (Parker and Robinson, 1887).[22]

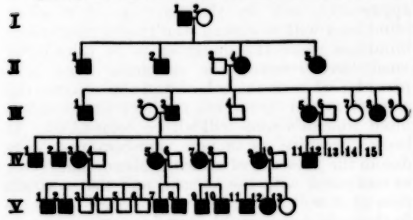


FIG. 24.
Huntington's Chorea (Hamilton, 1908).[22]

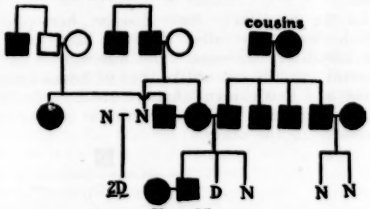


FIG. 25.
Deaf-mutism (Fay, 1898).[22]

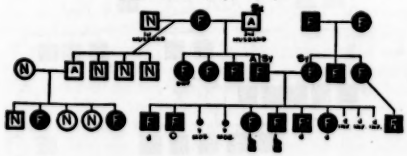


FIG. 26.
Feeble-mindedness (Goddard, 1910).[22]
Here the mental strength of the first husband brought the required element into the combination so as to give good children. The children of the alcoholic sex-offender (probably also feeble-minded) who was the second husband, were, on the contrary, all feeble-minded.

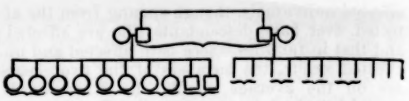


FIG. 27.
Twins (Stocks, 1861).[22]

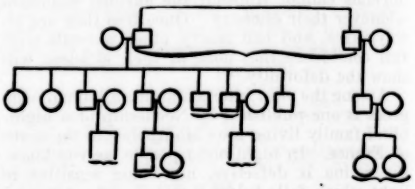


FIG. 28.
Twins (Wakley, 1895).[22]

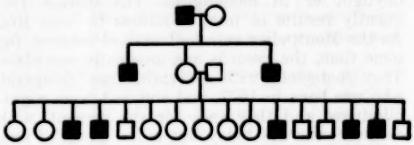


FIG. 29.
Ichthyosis (Bond, 1905).[22]
(Only males affected.)

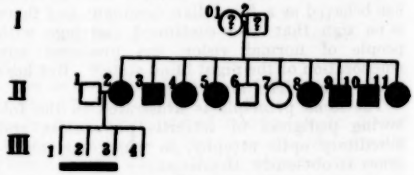


FIG. 30.
Exophthalmic Goitre (Davenport, 1911).[22]

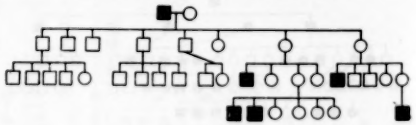


FIG. 31.
Color-blindness. (Jennings' "Color Vision and Color Blindness," p. 41.)

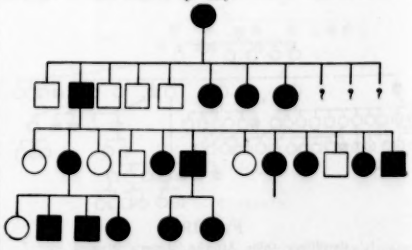


FIG. 32.
Brachydactyly (Farabee).[44]

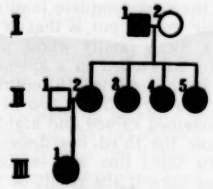


FIG. 33.
Sarcoma of the Eye-ball (Silcox).[48]

I will simply mention that Davenport and Weeks in the *Journal of Nervous and Mental Diseases* for November last have shown that epilepsy is inherited according to the Mendelian law, the proportion of epileptic children in the latest complete generation being double that of the preceding. And they conclude that "provided marriage matings continue as at present and no additional restraint is imposed, the proportion of epileptics in New Jersey would double every thirty years." They, therefore, advise segregation of all epileptics during the reproductive period.

By this means, cretinism, as you know, has within the last twenty years been practically wiped out from the city of Aosta by segregating the cretins in an asylum in charge of the Little Sisters of the Poor under Sœur Lucia, Mother Superior.[17]

Of imbecility* we may say that it is due to the absence of some definite, simple, Mendelian factor, as is indicated by the simplicity of its method of inheritance. Two imbecile parents, whether related or not, have only imbecile offspring. There is no case on record where two imbecile parents have produced a normal child. "So definite and certain," says Davenport, "is the result of the marriage of two imbeciles, and so disastrous is reproduction by an imbecile under any condition, that it is a disgrace of the first magnitude that thousands of children are annually born in this country of imbecile parents to replace and probably more than replace the deaths in the army of about 150,000 mental defectives which this country supports. The country owes it to itself as a matter of self preservation that every imbecile of reproductive age should be held in such restraint that reproduction is out of the question."

That these problems are not academic but are knocking for solution at our very doors is evidenced in this quotation from the *Boston Transcript* of November 18, 1911:

"In one of the prettiest and most picturesque villages nestling in the foothills of the Berkshires there was till recently a family which is directly descended from the blood of a Mayflower voyager. For three or four generations the representatives of this house have been idiots. They have intermarried with idiots whose ancestry is as fine and pure as their own. The children who have again intermarried have been also feeble-minded. Clearly such a condition must not continue. Here were men and women peopling the New England hills with their crazy kind; here were children running to waste and worse. Common humanity demanded that the thing be terminated. The S. P. C. C. terminated it. Armed with the prosecuting powers that a fortunate law has given it, the organization took away the children from their 'homes,' sent the mothers that were likely to give birth to more children to Waverly for life, cleaned up the children, took stock of their abilities and placed them either in homes where they could be brought up intelligently or else in hospitals suited to their various conditions. The net result is that the western part of Massachusetts is rid forever of a dangerous plague spot; lives which might have gone out in living darkness are given a chance to shine; the countryside is morally purged; a job without price has been well done."

The question of preventing the propagation of the feeble-minded by legalized vasectomy or castration has already been ably treated before this Guild. When I read in the writings of so high an authority as Rosanoff[41] these words: "Even if it were possible not only to enact laws for the sterilization of neuropathic subjects, but also to enforce them, nobody today would be in a position to tell whether or not it would be desirable or on the whole profitable for the human race to do so. . . The net result of such legislation has been so far no good and much harm. . . . The time has not yet come for radical action. The immediate need is for further investigation," I am, with Davenport,[22] "struck by the contrast between the haste shown in some states* in legislating on so serious a matter, compared with the hesitation in appropriating even a small sum of money to study the subject." But it may not be out of place to point out here that such legislation as has been enacted does not take into consideration the light which has been shed upon the subject of heredity by Father Mendel's researches. It is based entirely on the old and now discredited notion that parents transmit *their* traits to their children. We now know that traits are transmitted by means of the gametes and by them alone. No one transmits his somatic traits but rather the determiners in his germ plasm. Legislation which fails to square itself with the demonstrated truths of biology is as patently ridiculous as much of the so-called "vocational training" of

* Drewry (Virginia Med. Semi-Month.) defines amentia in the words of J. T. Searcy, as a "comprehensive term which has been used to designate an all-round want of normal mentality which has existed all the person's life, or since he has been old enough to have his mentality graded." In other words, "amentia is want of normal efficiency in all departments of thought." An *idiot* is "an ament who cannot be taught to be useful in any way to himself or to others, one who is utterly helpless and dependent"; an *imbecile* is "an ament who can be taught to do useful things under the immediate care and direction of others"; a *feeble-minded* person is "one who can be trained and educated to be quite useful and sometimes can work independently of outside help, if the work is not too complicated." De Moor defines abnormal children as "those afflicted with anything whatever that unfavorably affects their lives in relation to the social medium in which they live."

* Indiana, California, Washington, Connecticut, New Jersey, Iowa, Nevada, and New York have already passed such laws.

which we now-a-days hear so much is inherently vicious in tendency because opposed to natural biological laws.

"The evidence goes to show that if, for example, a man whose gametes have the determiner for normal mentality marries a feeble-minded woman all of the children will be mentally normal or practically so. (See Fig. 26.) Here we see the blessing of heredity. One can easily imagine the marrying of a well-to-do, mentally strong man and a high-grade feeble-minded woman with beauty and social graces which should be productive not only of complete domestic happiness but also of a large family of normal, happy children. Half of the gametes of such children would, indeed, be defective, but as long as the children married into normal strains, the offspring, through an indefinite number of generations, would continue to be normal. Yet in many states of the Union such a marriage would be against the law, and in others, the potential mother might be sterilized." These laws, if enforced, would have resulted in preventing the birth of Swift, Cowper, Shelley, Lamb, Burns, Keats, Byron, Schumann, Wagner, Glinka, Sir Isaac Newton,[41] and scores of others whose loss would have been irreparable. Such laws are unscientific in the highest degree, and every scientific man must oppose them on this ground if on no other.

And it gave me a new glow of pride in my religion when I read over again, the other day, in Tanquery, and Schouppe, and Nolden the clear, logical, definite, and, if I may say it, scientific exposition of impediments to marriage as the church rules and contrasted it with the contradictory and unscientific faddism of legislative minds untrained even to seek the truth from those competent to guide.

When we approach the question of the transmission of criminality we think immediately of one of the best-known families of this type, the so-called 'Jukes' family of New York State, so carefully investigated by Dugdale.[4] This family is traced from the five daughters of a lazy and irresponsible fisherman, born in 1720. In five generations this family numbered about 1200 persons, including nearly 200 who married into it. This family history was easier to follow than are some others because there was very little marriage with the foreign-born; "a distinctly American family." Of these 1200 idle, ignorant, lewd, vicious, pauper, diseased, imbecile, insane, and criminal specimens of humanity, about 300 died in infancy. Of the remaining 900, 310 were professional paupers in almshouses a total of 2300 years; 440 were physically wrecked by their own diseased wickedness; more than half the women were prostitutes; 130 were convicted criminals; 60 were habitual thieves; 7 were murderers. Not one had even a common-school education. Only 20 learned a trade and 10 of these learned it in State prison. They have cost the State over a million and a quarter of dollars and the cost is still going on.

Probably the most complete family history of this kind ever worked out is that of the "Familie Zero," a Swiss family whose pedigree has recently been unravelled in a splendid manner by Jorger. In the seventeenth century this family divided into three lines; two of these have ever since remained valued and highly respected families, while the third has descended to the depths. This third line was established by a man who was himself the result of two generations of intermarriage, the second tainted with insanity. He was of roving disposition and in the Valla Fontana found an Italian vagrant wife of vicious character. Their son inherited fully his parental traits and himself married a member of a German vagabond family. This marriage sealed the fate of their hundreds of descendants. This pair had seven children, all characterized by vagabondage, thievery, drunkenness, mental and physical defects, and immorality.

In 1861 a sympathetic and charitable priest attempted to save from their obvious fate many of these "Zero" children and others who resided in and near his village, by placing them in industrious and respectable families to be reared under more favorable auspices. The attempt failed utterly, for every one of the "Zero" children either ran away or was enticed away by his relatives.[18]

And yet illustrations by the dozen could be given of those whose heredity was bad enough to bind them to evil as with hoops of steel: whose actual indulgence in vicious courses had been long continued; and whose environment was full of gross and selfish influences, who yet raised themselves to the heights and became great saints, sages, leaders.

As to alcohol, I have been unable to find any satisfactory evidence of hereditary transmission of the overpowering desire for alcoholic drinks, or that drinking habits on the part of the parents cause the transmission to the offspring of a tendency to alcoholism. I have consulted every available book issued on the subject, and while there are general statements in plenty, I find no definite evidence that could by any possibility appeal to our scientific sense.[33] Dr. W. W. Hall,[23] it is true, writing in 1872, called attention to cases which he had noted, in which a drunken father had had drunken sons but not drunken daughters, while the daughters, marrying total abstainers, bore sons who afterward, in spite of proper environment, became drunkards. This looks like sex-influenced Mendelian transmission, but no figures are given as to the number of families in which this occurred, and the whole subject needs further study. At the present time we are forced to say that, as yet, the fact of transmission of the alcohol habit by heredity is "not proven." At the same time there is no question that the degrees in which men are tempted by alcohol differ greatly, and it is for students of this subject to discover how great a part therein environment or suggestion

plays. Bishop Brent[24] in his "Sixth Sense," says, "It is rather the tradition of the family trait of intemperance than a transmitted physical peculiarity that keeps the line of drunkards unbroken." I believe that there is a tendency in this regard to place on heredity the blame that really belongs on the individual. As Service puts it in his "Spell of the Yukon":

"From out the mesh of fate our heads we thrust.
We can't do what we would, but what we must,
Heredity has got us in a cinch.
(Consoling thought when you've been on a bust.)"

Neither can I find any evidence that insanity is more frequent in the descendants of drunkards than in those of the sober. The undoubted evils to the individual of excessive drinking are bad enough, but it is not self-evident that physical or mental degeneration of the descendants is among them. Again we say, this has not yet been proved; in fact the evidence is rather the other way, and it may be a false hope to suppose that these evils could be removed merely by the regulation of drink. If, however, the Mendelian law can be shown to apply, then this, like any other character, may undoubtedly be continued by unwise or eliminated by prudential mating in the course of two or three generations. The history of nations in regard to alcohol would be a fruitful field for some competent writer to engage upon. It will be found that almost all nations pass through the same stages with alcohol as with contagious diseases, such as measles. Measles introduced into a virgin race is very deadly, as witness Robert Louis Stevenson's account of the 20,000 deaths of the inhabitants of the Fiji Islands within four months of a first invasion.[25] But civilized nations have developed resistance in a way which is now well understood by medical men. So runs the parallel regarding alcohol, and we can all name races which are quite immune, others which are now painfully working out immunity, others which are at a more primitive stage.

But man is neither plant nor mere animal. For ours is no chance existence, and whatever may be the hereditary tendencies of our gametes, each one of us holds his soul as a new creation fresh from God's hand. That is a beautiful expression in the Talmud: "There are three partners in the production of the human being, viz. the Holy One, blessed be He, the father and the mother." (Kid. 30.)

The spiritual in man, constituting him a higher order, has steadily differentiated him from all below him. It has enabled him to transcend both heredity and environment.

And although the laws of heredity allow him to transmit to his descendants no tittle of his toilfully gained mathematical, linguistic, or other stores of knowledge; nor even a greater facility in their acquirement, since the gamete recks as little of conic sections as of Greek roots; and the zygote must develop his faculties and talents by individual volitional action; and though he is forbidden to pass on to his offspring, by congenital endowment, that strength of character and mastery over temptation which he has himself painfully acquired through many days of struggle and many nights of prayer, let it be yet remembered that "it is a finer and stronger thing to improve steadily the tradition of family or race by a series of successive personal conquests and achievements than to gain exemption from evil tendencies by the more or less mechanical process of procreation."[26]

From all this we are able to see the wisdom of the Church in her age-long asking that the little children be suffered to come unto her for their education and training in the life of the Spirit. Character cannot be inherited. It must be won. It is not safe to trust to hereditary transmission of religious feelings and ideals. In every generation there is need of a fresh, individual instruction and discipline. Thus we see that the experience of the centuries and the newest law of biological science are in absolute accord.

Regarding insanity I cannot do better than to include from one of the most recent authoritative works[27] the following quotation:

"Recent investigations seem to show that those forms of insanity and allied neuropathic conditions which are transmissible by heredity are so transmitted in accordance with the laws of Mendel. These laws, when found to hold for any hereditary character, render possible a fairly definite prediction of the types of offspring that may be expected to result from any given mating.

The following extensive quotation from a recent contribution to the subject of heredity in insanity gives the essential points of the Mendelian laws, some results of an analysis of pedigrees of insane subjects, and rules of theoretical expectation:

The total inheritance of an individual from his parents is divisible into unit characters, each of which is inherited independently of all the rest and may, therefore, be studied without reference to other characters.

The inheritance of any such character is believed to be dependent upon the presence in the germ-plasm of a unit of substance called a determiner.

With reference to any given character the condition in an individual may be dominant or recessive; the character is dominant when, depending upon the presence of its determiner in the germ-plasm, it is plainly manifest; and it is recessive when, owing to the lack of its determiner in the germ-plasm, it is not present in the individual under consideration.

The dominant and recessive conditions of a character are often designated by the symbols D and R respectively.

To make the matter clearer we may take as an example of a Mendelian character the case of eye color.

The brown color is the dominant condition while the blue color is the recessive condition, as

was shown by Davenport. It would seem that the inheritance of brown eyes is due to the presence in the germ-plasm of a determiner upon which the formation of brown pigment in the anterior layers of the irides depends.

On the other hand, the inheritance of blue eyes is believed to be due to the lack of the determiner for brown eye pigment in the germ-plasm; for the blue color of eyes is due merely to the absence of brown pigment, the effect of blue being produced by the choroid coat shining through the opalescent but pigment-free anterior layers of the irides in such cases.

It must be borne in mind that as regards the condition of any character every person inherits from two sources, namely, from each parent. Therefore, with reference to any character, he may be pure bred or hybrid.

A case of inheritance of a character from both parents is spoken of as one of *duplex inheritance* and is often designated by the symbol DD.

A case of inheritance of a character from only one parent is spoken of as one of *simplex inheritance* and is designated by the symbol DR.

A case in which a character is not inherited from either parent, therefore exhibiting the recessive condition, is spoken of as one of *nulliplex inheritance* and is designated by the symbol RR.

We are in a position to estimate the relative number of each type of offspring according to theoretical expectation in the case of any combination of mates.

There are but six theoretically possible combinations of mates. Continuing to make use of the case of eye color as an instance of a Mendelian character, let us consider in turn each theoretical possibility.

1. Both parents blue-eyed (nulliplex): all children will be blue-eyed, as may be represented by the following biological formula,

$$RR \times RR = RR.$$

2. One parent brown-eyed and simplex (that is to say inheriting the determiner for brown eye pigment from one parent only), the other blue-eyed: half the children will be brown-eyed and simplex and the other half blue-eyed:

$$DR \times RR = DR + RR.$$

3. One parent brown-eyed and duplex, and the other blue-eyed all the children will be brown-eyed and simplex:

$$DD \times RR = DR.$$

4. Both parents brown-eyed and simplex: one-fourth of the children will be brown-eyed and duplex, one-half will be brown-eyed and simplex, and the remaining one-fourth will be blue-eyed (nulliplex):

$$DR \times DR = DD + 2DR + RR.$$

5. Both parents brown-eyed, one duplex and the other simplex: all the children will be brown-eyed, half duplex and half simplex:

$$DD \times DR = DD + DR.$$

6. Both parents brown-eyed and duplex: all the children will be brown-eyed and duplex:

$$DD \times DD = DD.$$

It will be readily seen from these formulae that in attempting to predict the proportions of the various types of offspring that may result from a given mating it is necessary to know, not only whether the character is in each parent dominant or recessive, but in the case of the dominant condition, also whether it is duplex or simplex.

Turning again to the case of eye color, an individual with blue eyes we know to be nulliplex as he has no brown pigment in his eyes and, therefore, could not have inherited the determiner for brown eye pigment from either parent. But how are we to judge in the case of a brown-eyed person whether he has inherited the determiner for that character from both parents or only from one? We can judge this only by a study of the ancestry and offspring of the individual.

To put the whole matter in a nutshell, the essential difference between a dominant and a recessive condition of character is in the fact that in a case of simplex inheritance the dominant condition is plainly manifest while the recessive condition is not apparent and can be known to exist only through a study of ancestry and offspring.

This is important because it constitutes the criterion by which we are able to determine whether any given inherited peculiarity or abnormality is, as compared to the average or normal condition, dominant or recessive.

One of the first facts that appeared in the study of the pedigrees was that any form of insanity or even all the forms of hereditary insanity do not constitute an independent hereditary character, but that they are closely related to imbecility, epilepsy, hysteria, and various mental eccentricities that are not usually included under the designation insanity. In other words, the distinctions between these conditions as clinical entities cannot, in the light of their manner of origin, be regarded as deeply essential.

We find as manifestations of the neuropathic make-up in closely related persons cases of feeble-mindedness, convulsions in childhood from trivial causes or chronic epilepsy, cases of grave hysteria, various eccentricities, cases of dementia precox, manic-depressive insanity, paranoic conditions, involutional psychoses, and the like.

It is not to be assumed, however, that what we have called here the neuropathic make-up constitutes the basis of all the clinical forms of nervous and mental diseases, for, on the one hand, some of these conditions, like general paresis or alcoholic polyneuritis, are probably purely exogenous in origin, and, on the other hand, others, like Huntington's chorea, are plainly independent Mendelian characters.

The pedigree charts contain a number of instances of neuropathic children born of normal parents, but not a single instance of a normal

child born of parents both of whom are neuropathic.

This proves that the neuropathic make-up cannot be dominant over normal; but that if its transmission occurs at all in a manner corresponding to the Mendelian laws, it must be recessive to normal. (If this is true it would seem quite possible to reduce in a few generations the enormous sum expended by the State of Massachusetts for the care of the insane, amounting to one-fourth of the entire State income, by the application of Mendel's law to marriage matings.—J. M. C.)

We have seen that in our material the correspondence between theoretical expectation and actual findings is very close. That is to say, the hypothesis according to which the neuropathic make-up as here defined, is recessive to normal, in the Mendelian sense, is borne out by the facts as shown in our pedigrees.

Should larger accumulations of such data in the future give similar results we shall be able to establish the following rules of theoretical expectation:

1. Both parents being neuropathic, all children will be neuropathic.

2. One parent being normal, but with the neuropathic taint from one parent, and the other parent being neuropathic, half the children will be neuropathic and half will be normal but capable of transmitting the neuropathic make-up to their progeny.

3. One parent being normal, and of pure normal ancestry and the other parent being neuropathic, all children will be normal but capable of transmitting the neuropathic make-up to their progeny.

4. Both parents being normal, but each with the neuropathic taint from one parent, one-fourth of the children will be normal and not capable of transmitting the neuropathic make-up to their progeny, one-half will be normal but capable of transmitting the neuropathic make-up, and the remaining one-fourth will be neuropathic.

5. Both parents being normal, one of pure normal ancestry and the other with the neuropathic taint from one parent, all the children will be normal; half of them will be capable and half incapable of transmitting the neuropathic make-up to their progeny.

6. Both parents being normal, and of pure normal ancestry, all children will be normal and not capable of transmitting the neuropathic make-up to their progeny."

Lack of space obliges me to pass rapidly over the solutions of the kindred questions raised at the beginning of this paper. No medical man who is capable of logical thinking can be induced for a moment to believe that any mother on receiving a mental impression ever transmitted that impression to her offspring. Many of the laity, however, believe something still more essentially unbelievable when they claim that the mother receives a mental impression and transmits to the offspring something entirely different, a physical abnormality; or that she receives a physical impression and that the child is said to develop a physical character, but not the character the mother acquired. The mere statement of the proposition discloses the solution. *Nemo dat quod nullo modo habet.* The theory of telegony has of course long since been abandoned.

In regard to syphilis, the recent proof that the *treponema pallida* is the cause of this disease settles forever the question of its inheritance. This spirochete multiplying in the parent body may pass from the parent to the germ cell, embryo, or fetus, precisely as it may pass to an adult individual. It is no more inherited than a bullet is inherited which pierces a mother and enters her fetus.

The consideration of the facts of heredity inevitably raises the ancient question of the freedom of the will. Many of our foremost biologists today are rigid determinists. It is by all of them admitted that Mendelism has dethroned Lamarckism and Darwinism, has thrown biology back to the permanency of species in themselves and done away forever with all idea of "missing links," since there are and can be no gradual connecting gradations. But it is not yet so clearly seen that if Father Mendel is right the determinists are of necessity wrong, and that we are forced still to maintain that old thesis which twenty years ago I defended, *"Voluntas humana gaudet libertate arbitrii."*

The discovery of Mendel shows, as has been so clearly shown in no other way, the essential brutality and wicked waste of war, which has always been a prime factor in destroying the most desirable elements for male parentage, leaving the less desirable for the future of the nation.

Prof. Robert De C. Ward[40] of Harvard has demonstrated how the biological truths flowing as consequences from Mendel's law of heredity should at once be applied to our immigration laws, to the end that a careful selection of our incoming alien millions may screen out the insane, the imbecile, the idiot, and the habitual criminal, potential parents here of physical and moral degenerates.

Giving new answer to the old question of Job, "Who can bring a clean thing out of an unclean?" the law of Mendel points out distinctly the fatal flaw in the Socialistic philosophy, that social reform may be brought about by changing the environment. And the message of Mendel, like that of his Master, is that to have a new society there must first of all be a new man.

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THE TREATMENT OF PULMONARY TUBERCULOSIS BY ARTIFICIAL PNEUMOTHORAX, ACCORDING TO THE METHOD OF FORLANINI.

WITH A REPORT OF TWENTY-ONE CASES.

BY GERARDO M. BALBONI, M.D., BOSTON.

(*Continued from page* 808.)

REPORT OF CASES.

All the following cases except three are ambulatory—in different stages of the disease. The average duration of the disease is about two years.

Cases 1, 2, 3, 6, 5, and 7 are respectively cases 26, 27, 28, 22, and 23 of the Robinson and Floyd series reported in the *Archives of Internal Medicine*, April 12, 1912. These were patients that I provided from my private clinic and in which I continued the treatment to the present time.

With the exception of Cases 17-19 and 20 they have all been seen at various times during the course of treatment by Dr. Samuel Robinson to whom I am indebted for much help and many suggestions in the preparation of this work.

To Dr. Walter J. Dodd and his associates I am indebted for the x-ray work.

CASE 1. J. A. Female, white, married, 29. Occupation, housework. *Family History.* Father and mother living, three sisters, one brother dead. *Past History.* Six years in U. S. A., 6 years married; 4 children, last one born March 25, 1911. Erythema nodosum last year. *Present Illness.* 10 days' cough, pain in chest, fever, general weakness, headache, "all-gone" feeling, appetite poor, bowels regular. Temperature 102; pulse 120; respiration 30. In bed 3 days, night sweats, cough very troublesome. *Physical Examination.* May 5, 1911. Well developed and nourished. Good size. Poor color. Pupils react. Tongue coated, protruded in medium line, teeth good, kneejerks normal. Tubercle bacilli in sputum. In the right chest above the second rib in front and the spine of the scapula behind there are dullness, bronchovesicular breathing and an occasional fine dry râle. On the left side above the third rib in front and the midscapular region behind there are dullness, bronchial breathing, increased vocal and tactile fremitus and an occasional moist râle. Nitrogen (1000 c.c.) injected in the left anterior axillary line.

May 12. Following the production of the artifical pneumothorax there was a great deal of discomfort, pain and weakness. Had to lie down for 2½ hours. Pulse 120, rather weak, gradually grew stronger and came down to 96. Vomited half an hour after taking morphia. Seen at home, in the night, was comfortable in bed and resting, though complaining of pain and heaviness on left side.

May 14. Up and about; feels better, but complains of pain on the left side. Is taking food well.

May 16. Weight 123 pounds. Examination shows on the right side that there is now only slight dullness at the apex behind. Respiration is harsh throughout the chest. On the left side below the fifth rib back and front there is tympany with diminished respiratory sounds. Above this area there is dullness, bronchial breathing and rare dry râles.

June 3. General condition good. Cough slight. Raises half an ounce in 24 hours. At left base percussion note slightly tympanitic respiratory sounds diminished. An occasional dry râle at left apex in front. Patient given injection amounting to 1,000 c.c. of nitrogen.

June 21. Feels fairly well. Cough diminished and much drier. Light pains in left chest. Weight 121½ pounds. General condition improved. Examination showed some dullness with diminished voice sounds. No pneumothorax present except small area in upper axilla. No signs on right side. On the left side few scattered râles especially in left front. Patient given an injection of nitrogen gas anteriorly to the amount of 600 c.c.

July 15. Feels well except for slight cough in the morning, raising small amount of frothy sputum. She has been doing her housework and taking care of a family of seven; four children—one is nursing. *Examination.* No pneumothorax evident. Slight dullness and diminished voice sounds and scattered râles in left front. 1000 c.c. nitrogen injected, left anterior axilla. No untoward symptoms.

July 30. Feels well, slight cough. Partial pneumothorax. Injected 800 c.c. nitrogen gas. Pneu-

mothorax complete. Respiratory sounds very faintly audible.

From August 15 to December 10, 1911, patient was seen every two weeks, receiving injections of nitrogen gas, so as to keep pneumothorax complete. At this time repeated examinations of sputum were negative for tubercle bacilli. Weight 125 pounds. Does her own work. Has been working very hard.

January 25, 1912. Patient has been working very hard taking care of a sick baby. Has had to be up many nights. Has developed a bothersome cough, has little appetite and is generally run down. Is suffering now with a severe cold. Has lost weight. The sputum is still negative.

Examination. Left lung has expanded. There are bronchovesicular breathing and râles in the front left from third rib upward. In the back scattered râles throughout. Squeaks are heard throughout right lung with harsh exaggerated respiratory sounds. Temperature 100°. Pulse 96. Respiration 20. Injected 1000 c.c. nitrogen gas without any symptoms.

January 30. Has been much better, cough less irritating. Pneumothorax reaches fourth rib in front. Râles heard at apex. Sputum negative. 1000 c.c. nitrogen injected, thus completing pneumothorax.

March 15. Has been confined to the house since last visit on account of two sick children. Cough very troublesome. Headache and pains all over limbs. Appetite fair. Sputum is still negative for tubercle bacilli. Weight 115 pounds.

For four successive days injected nitrogen gas. Total amount given being 1400 c.c., which was sufficient to immobilize the lung without any discomfort at the time. In the evening I was sent for. The patient was suffering from severe pain on the left side, extending from nipple to shoulder in front and behind. Coughing very painful. Has had to keep very quiet. The pneumothorax was complete, the heart being displaced to the right. There were signs of pressure on right lung. The patient was given ¼ grain morphia subcutaneously and put to bed. She passed a comfortable night, but next morning the pain was quite severe. There was dyspnea and increased pain on exertion. Patient kept to her bed. In the evening another quarter gain morphia given so that she could pass a restful night. Temperature 99.5°, pulse 96, of good quality, and respiration 22. Coughs up a clear sputum. A few squeaks heard in the right lung. The patient kept to her bed for three days more, getting better and not needing any morphia. At this time her sister-in-law came to live with her, and has taken care of most of the work.

April 1. Feels much better. Coughs very little and what sputum she raises is clear and frothy. Right lung is clear and there are no longer squeaks. left lung tympanitic throughout, no râles, but respiratory sound is heard at apex. 100 c.c. nitrogen gas injected.

April 22. Is feeling better, hardly any cough. Sputum sent to be inoculated into guinea-pigs. Pneumothorax apparently complete. 100 c.c. nitrogen gas introduced. No pain. I have urged this patient to move away from the North End and she has promised to do so the first of May.

May 1. Patient has moved to Chelsea. Appears well contented. Does not work so hard. Pneumothorax of left lung still complete. Pulse 72, of good quality. No signs on the right.

May 15 *to June* 2. Condition unchanged. No cough or expectoration. General condition good. Weight 120 pounds.

June 3. Report from the sputum sent to be inoculated into guinea-pigs March 22, 1912. "Guinea-pigs inoculated, 4-23-12. Autopsied, 6-3-12. No lesions and no tubercle bacilli found."

June 11. Patient shown to the Section on Tuberculosis of the Massachusetts Medical Society.

June 16. Continues to feel well. Introduced 200 c.c. nitrogen gas to complete pneumothorax.

Nothing abnormal heard in right lung.

July 6. Weight 124¾ pounds, feels fine, has no cough, no sputum; is doing her own housework. General condition very satisfactory.

REMARKS

This patient represents a class of cases frequently met with. Large family and plenty of work. It must be noted that she has lived in unfavorable hygienic surroundings, has had considerable sickness in her family, causing increased work and worry. She left off treatment for a while, which caused the old symptoms to return, but note that repeated sputum examinations showed the absence of tubercle bacilli. Then note also the marked improvement once the pneumothorax was established and maintained.

Case 2. V. T. Female, 29, white, married. *Family History.* Mother died in confinement. Sisters and brothers well. *Past History.* Married 8 years. 3 children, miscarried at the third month, 1 month ago. *Present Illness.* Three months pain in chest, cough, night sweats. Appetite poor. Bowels regular. Great deal of sputum. No blood noticed in it. *Physical Examination.* May 6, 1911. Well developed and fairly well nourished. Fair color. Tongue clean, protruded in median line. Teeth good. Pupils react. Weight 123 pounds. Tubercle bacilli in sputum. On the right side above the second rib in front and the spine of the scapula behind dullness, increased resistance, vocal fremitus, increased bronchial breathing, an occasional dry râle. On the left side there are signs of consolidation above the fourth rib in front and the angle of the scapula behind. Over this area are numerous moist râles, both coarse and fine. By means of thoracentesis in the eighth space anterior axillary line 500 c.c. of nitrogen were injected without discomfort to the patient.

May 12. No night sweats. Feels heavy on injected side; weight 123½ pounds. Examination shows that the signs of consolidation at the right apex are less marked. Dullness less intense, breathing less bronchial. On the left side there is an area of tympany at the extreme left base. Above this area signs of plumonary infection remain unchanged. Patient reinjected in the eighth intercostal space in the posterior axillary line, 900 c.c. of nitrogen gas being introduced.

May 16. No night sweats; sputum temporarily increased following last inoculation. General condition improved; weight 123½ pounds. Examination shows right apical signs to be slight. On the left side tympany extends up to the level of the fifth rib behind. Over this area fremitus and respiratory sounds are much diminished. No râles are present over the area of consolidation at the left apex. Heart is somewhat displaced toward the right side.

June 21. Very little cough. No expectoration. Examination shows very little activity in chest. Oc-

casional scattered râle in chest on left side. No pneumothorax present. Thoracentesis is given in anterior axillary line and 600 c.c. of nitrogen gas injected.

There was a great deal of pain during the introduction of the nitrogen and for two hours afterwards.

June 23. Weight 125 pounds. Cough slight, no expectoration; looks and feels well. Examination shows pneumothorax has been absorbed. At the extreme left apex, signs of consolidation persist, rare dry râle heard. Patient was given another injection of 700 c.c. of nitrogen.

June 30. Slight cough in the morning; very little sputum. Examination shows occasional scattered râles on the right; breathing is markedly increased. On the left fine crepitant râles on apex. There is tympany throughout anterior part of left chest with diminished respiratory sounds.

Injected 900 c.c. nitrogen gas in midaxillary line. Very little pain felt. After resting fifteen minutes patient went home.

July 3, 1911. "Feeling fine;" does not cough or raise any sputum. For the last three days has been out in the country. I have advised her to move to the country.

On examination the left lung throughout the anterior part is tympanitic. Feeble respiratory sounds. No râles heard except an occasional one at the apex.

Tympany less marked in the back and respiratory sounds plainly audible. Injected 800 c.c. nitrogen gas. This apparently completed pneumothorax. No râles heard in any part of left lung—coin sound demonstrable.

The right lung is hyperresonant; respiration loud and harsh in character. Very little pain felt after the injection. Heart, which is displaced about two fingers' breadth to the right, has a regular rate of 100.

July 10. Has been in Woburn for the last week. General condition good, except for shortness of breath on exertion. Weight 128 pounds. Appetite increasing. Pneumothorax is still complete on the left. No râles heard in any part of chest. Heart still displayed, condition good. No cough. No expectoration. Patient is going to Rockland, Maine.

March 30. Since she has been away she has sent the sputum three times and each time it has been found negative for tubercle bacilli. At present her weight is 132 pounds. Has no cough, occasionally a little sputum in the morning.

On examination the lung has completely expanded, no râles heard anywhere; there is bronchovesicular breathing at left apex in front and rather harsh breathing behind. Lung is mobile throughout.

X-ray by Dr. Dodd shows a completely expanded lung.

Sputum examination is negative.

June 9. Patient wrote that she was feeling well, had no cough to speak of, did all her own housework and was about to be confined. She sent a small bottle containing a little sputum which was found negative.

REMARKS.

On account of the pain this patient suffered during and after some of the injection she often threatened to leave off treatment. She was persuaded to continue on account of the improvement. Steady gain in weight and disappearance of symptoms certainly were due to the treatment.

CASE 3. G. D'A. Male, 30, white, single. Occupation, laborer. *Family History.* Father and mother living and well. Two brothers, 3 sisters well. *Past History.* Pleurisy 8 years ago while a soldier in Italian army. Seven years in U. S. A. One year ago began to cough and has had this cough off and on ever since. At the beginning of cough spat blood for two days, none since. *Present Illness.* Two weeks now feels run down, cough, night sweats, cough bothers him worse at night. Pain on coughing in the region of the midsternum. *Physical Examination.* May 5, 1911. Well developed and nourished. Good color. Pupils react. Tongue clean. Weight 148 pounds. In the left chest, above the first rib in front and the spine of the scapula behind, there are dullness, bronchovesicular breathing, increased vocal fremitus. On the right, above the third rib in front and the seventh rib behind, there are dullness, bronchial breathing, increased vocal and tactile fremitus, numerous medium and coarse moist râles. At the extreme right base respiration is limited. Tubercle bacilli in sputum.

May 12, 1911. Artifical pneumothorax performed. Anterior axillary line, level of the fourth rib of the point of injection and 400 c.c. of nitrogen gas introduced. At end of introduction of gas patient had fainting sensation, but soon recovered and was able to dress and leave.

May 14. Cough less, raises less sputum, does not have any night sweats. Pain at site of puncture on coughing. Feels better to-day.

May 16. Examination shows, on the left side, area of dullness much diminished and respiratory sounds normal. On the right side above first rib in front and fourth rib behind, dullness, bronchovesicular breathing, and no râles are heard. Below the level of the fifth rib in front and the angle of scapula behind there is a tympanitic note on percussion, with diminished respiratory sounds.

June 6. Examination shows persistence of pneumothorax at the right base. Some slight expansion of lung with a reappearance of a few râles in right front. Patient given a second injection of 1200 c.c. of nitrogen which was well endured, no cardiac displacement.

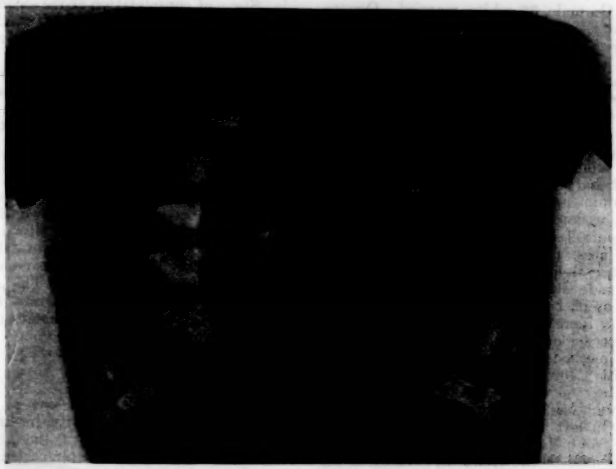
From July 15, 1911, treatment has been carried on by the author alone.

Physical Examination. July 15. *Right Lung.* Pneumothorax to sixth intercostal space in front. Respiratory sounds feeble, few râles at apex. *Left lung.* Dullness above first rib in front and behind the scapula. Increased fremitus, moist, coarse râles. *Tubercle bacilli* in sputum.

Feels much better, cough is less, not troublesome at night, no night sweats. Is working. Patient given injection of 1000 c.c. of nitrogen. Felt perfectly well after injection.

July 22. Feels better, sputum is less. Partial pneumothorax, 1000 c.c. nitrogen gas injected. Pneumothorax now complete.

July 30 *to June* 1, 1912. Patient has been steadily at work, part of the time indoors and part of the time outside, tearing down old buildings. He has come for treatment twice a month. It was always necessary to inject nitrogen gas as the pneumothorax was partially absorbed. It was impossible to make him change his work to an exclusive out-of-door life. Nevertheless he has coughed very little, the sputum has been small in amount; repeated examinations show tubercle bacilli still present. He lives in the North End in poor hygienic surroundings. With all these disadvantages the



Case IV. Incomplete pneumothorax, right side; no evidence of adhesions. Complete pneumothorax obtained in this case after injection of greater quantity of nitrogen gas. Very slight process in left lung that is inactive. This patient has absolutely no symptoms and is enjoying perfect health.

patient has been able to work and there has been marked symptomatic relief.

Case 4. Virginia B. 20, single, May 10, 1911. Works in woolen mill, Plymouth, Mass. *Family History.* Negative. *Past History.* One year ago was ill three weeks with pneumonia. *Present Illness.* Five months ago began to complain of slight pains in right side of chest, slight cough, slight expectoration. Diminishing appetite, slight nausea, bowels regular, menstruation regular. Two months ago began to have night sweats and chilly sensations with slight evening rise of temperature; cough persists; little sputum, which is negative. Some loss of weight. *Physical Examination.* May 15, 1911. Well developed and fairly nourished. Mouth and teeth in good condition. No glandular enlargement. Chest symmetrical and well proportioned. On the right above second rib in front dullness, bronchovesicular breathing with crepitant râles. Behind above spine of right scapula dullness with bronchial breathing. Left lung, negative. Heart, negative.

June 6. 700 c.c. nitrogen gas injected going into fifth interspace about one inch inside midaxillary line. The patient had absolutely no symptoms. She immediately came off the operating table and dressed. Pulse of good quality, 78.

June 14. Feels a little better. Tympany throughout the front lung with diminshed breathing. Fine dry râles at apex. 1000 c.c. nitrogen gas injected. Except for a slight feeling of tightness about the chest no discomfort whatever. The respiratory sounds are very faint. No râles heard. In noncompressed lung exaggerated and harsh respiratory sounds. Heart condition good.

June 22. Has been coughing very little, no sputum whatever. No longer has night sweats. The appetite is good and the general condition of the patient has markedly improved. 500 c.c. nitrogen gas injected. No symptoms. The patient came regularly every two weeks for treatment. She felt so well that she married. After that she came every month up to November. She received altogether eleven injections of nitrogen gas, totaling 9200 c.c. Since November she has received none, as the pneumothorax was complete. Her last injection was given in November, when an x-ray taken by Dr. Walter J. Dodd showed a complete collapse of the lung.

I have been in communication with the patient right along. She has continued in good condition. In April, 1912, she came again for examination. The pneumothorax was still complete. An x-ray taken showed the lung still collapsed but not as much as it was in November when the first x-ray was taken.

June 11. She was shown to the Section on Tuberculosis of the Massachusetts Medical Society. General condition was excellent. No cough or sputum. There was a gain in weight and she was seven months pregnant.

REMARKS.

This is the only incipient case of the series. In the literature there is no report of any incipient cases treated. The refusal on the part of the patient to enter a sanatorium and the depressed mental and physical condition to my mind justified the treatment before there was a further progress in the disease. She has remained in perfect health. She has been doing all her own housework. This case illustrates a point which is very marked as you study this series of cases. Where the lung is little involved, as in an early case, the pneumothorax is maintained complete longest without replenishing. The more extensive the lesions, the more often are replenishments of nitrogen gas necessary, for the gas is absorbed more quickly.

CASE 5. F. G., male, 36, white, married. Occupation, machinst. *Family History.* Father and mother living. Six brothers and 4 sisters well. *Past History.* Negative. Denies venereal disease. Five years married. Two children. Wife well. *Present Illness.* Three months ago began to feel run down; cough, weakness; no blood in sputum. April 20, 1911. Took to bed and was in bed 12 days with pneumonia; had night sweats, cough, fever, pain in side. *Physical Examination.* Fairly well developed and nourished. Thin; tongue clean, teeth good, pupils react and are equal, knee-jerks, chest flat, depression below clavicle. On left side above midscapula behind and third rib in front there are dullness, bronchial breathing, increased vocal and tactile fremitus and numerous dry râles. On the right side above second rib front and the spine of the scapula behind there are dullness, bronchial breathing, increased fremitus both tactile and vocal and an occasional râle. Nitrogen injected by the Forlanini method in the anterior axillary line on the left side; 400 c.c. introduced without discomfort.

May 16. Cough less, expectoration slight. Weight 117 pounds. On left above midscapula behind and third rib in front dullness, bronchial breathing. Increased vocal and tactile fremitus, occasional dry râles. Below dull area there is moderate tympany upon percussion, diminished fremitus and respiratory sounds. On right above second rib front and spine of scapula behind signs as on left.

June 6. Patient at present has no symptoms. Feels better. Examination shows signs of consolidation on the right side much less marked. On the left side there is evidence of lung compression with an area of tympany over the lower lobe. A few dry râles persist in the area of consolidation. By means of thoracentesis patient was given 800 c.c. of nitrogen gas. Injection was given in anterior axillary line. There were no symptoms following the production of pneumothorax.

June 21. Working and feeling well. No cough.

REMARKS.

A complete pneumothorax was never produced in this case. As soon as the patient had obtained symptomatic relief he refused to continue treatment. The patient became careless, travelling from one place to another. His friends becoming tired of helping him, he was finally induced to enter a sanatorium where he remained for about ten months, leaving against advice, with a still active process. When seen recently he had begun to lose weight, the cough was troublesome and there was a beginning throat lesion.

CASE 6. N. L., male, 19, white, single. Providence, R. I. *Family History.* Father died of pneumonia last year, 1 brother died as result of an accident, 2 brothers died in infancy. *Past History.* At 9 years of age had pain in left side which was very severe at first. *Present Illness.* Fourteen months ago general weakness, cough, fever, night sweats, blood in sputum; gradually losing weight. For the last two months considerable pain on deglutition. Tubercle bacilli in sputum. *Physical Examination.* April 29, 1911. Fairly well developed and nourished. Thin, skin dry and hot, tongue clean, teeth good, pupils react, weight 90 pounds. Examination shows both apices involved, more marked on left side. Signs of consolidation above second rib on right and fourth on left. Râles few and fairly dry. Some dullness at extreme left base. Tuberculous ulceration of the larynx.

Injection made by Forlanini method in anterior axillary line, 300 c.c. nitrogen being introduced and then operation stopped on account of pain. Nitrogen flowed slowly and with difficulty but under little pressure. A small pleural sack probably surrounded by adhesions distended by nitrogen, no pneumothorax demonstrable.

May 7. Following the injection on April 29th, he felt much better. The throat condition bothered him making it very difficult for him to swallow.

Injected 300 c.c. nitrogen gas into the fifth interspace midaxillary line. There was considerable pain for an hour after the injection. The general condition of the patient did not warrant travelling the long distance he came for treatment and he was advised to discontinue it.

Died July 15, 1911.

CASE 7. A. R., male, 42. *June* 21, 1911. A bilateral case with slight activity in the right lung, and extensive involvement of the left lung with cavity formation at third interspace in front. Before commencing treatment an x-ray was taken by Dr. Walter J. Dodd.

April 12, 1912. Patient has not received any injection of nitrogen gas since June 21, 1911. The last injection caused some constriction about the throat and a slight subcutaneous emphysema, which troubled him a few days. I have seen this patient almost daily since. He has kept in fairly good condition, as his work has kept him out of doors. 1000 c.c. nitrogen gas introduced, into fifth space an inch inside left midaxillary line, without any discomfort whatever, the gas entering for the most part anteriorly and not displacing the heart.

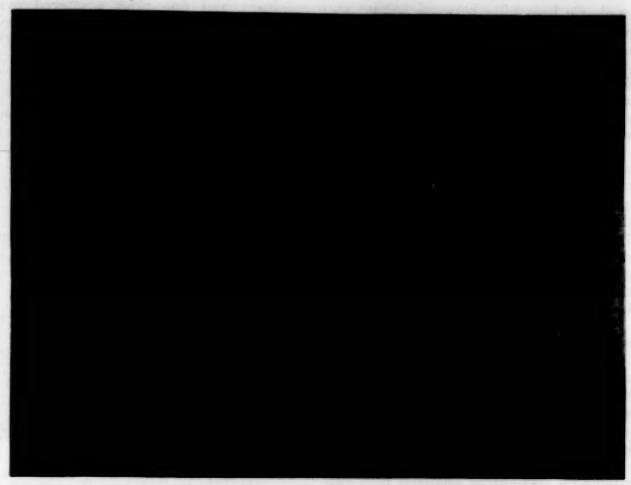
April 19. 1800 c.c. nitrogen gas introduced with absolutely no discomfort. On account of the pleural thickening the needle went very deep. This amount of gas did not cause any heart displacement. At the beginning of the introduction the apex beat was seen plainly outside and below the nipple line. At the end it had not perceptibly altered its position, so we conclude that the heart must be bound down by adhesions. This amount obliterated the râles from the left lung, though the signs of the cavity were still evident. Soon after this injection there was marked improvement in the general condition of the patient. During the week the cough became looser and less troublesome, the night sweats disappeared, and the appetite improved.

April 28. Crepitant râles at left apex, bronchovesicular breathing and signs of a cavity. Exaggerated respiratory sounds harsh in character. Dry and musical râles from second rib front and from spine of scapula behind. Feels very well and is working. 1200 c.c. nitrogen gas introduced with no pain or discomfort. This amount did not obliterate all the abnormal sounds.

May 7. Has gained three pounds while under treatment. Has had pleuritic pains in right chest. Some cough, but looser. 1800 c.c. nitrogen gas injected, which obliterated the râles but not the signs of cavity at the third rib.

May 14 to *May* 31. Continues to improve; has come regularly every week for replenishment.

June 11. Shown to the Section on Tuberculosis of the Massachusetts Medical Society.



Case VIII. Incomplete pneumothorax, left side; adhesions in upper part of chest prevent complete pneumothorax. Extensive process in right lung. Old bilateral process. Marked symptomatic relief. While under treatment kept continuously at work.

REMARKS.

A very difficult case to control. The nitrogen gas is very rapidly obsorbed, because of the great amount of work the patient does and the advanced stage of the process in the lung. There has been no return of the hemorrhages which he had last year. On two occasions I have injected 1800 c.c. nitrogen gas without displacing the heart or causing any symptoms whatever. The manometer also showed very little increase in the positive. The process in the right lung is at a standstill. After each injection there is always an increased amount of sputum which is still positive. The patient is still at work.

Case 8. C. G., 38, married. Grocer. October 16, 1911. Referred by Dr. R. P. Bonnelli. *Family History.* Negative. *Past History.* Eight years ago operated upon for appendicitis. Has had pulmonary tuberculosis for six years, and four years ago was in the State Infirmary. Cough, large amount of expectoration, pains throughout the chest, dyspnea on exertion, chilliness, occasional night sweats. *Physical Examination.* Worried looking man, appears to have suffered a great deal. (He has a family of five to support by keeping a little grocery store.) Weight 121 pounds. Extensive involvement of left lung, with a small cavity between second and third ribs. Moist and crepitant râles throughout lung front and back. Right lung moderately involved at apex. Large quantities of tubercle bacilli in sputum.

Introduced 100 c.c. nitrogen gas into the left pleura, going in the sixth interspace midaxillary line. The intrathoracic pressure was not changed, remaining negative at end of the introduction. Patient had considerable pain, necessitating hypodermic injection of ¼ grain morphia. Patient was kept quiet for an hour.

October 20. Patient was uncomfortable the whole of the next day after the injection. 200 c.c. nitrogen gas was introduced. There was much pain, some troublesome cough soon after. The pulse became rapid and weak. Patient kept absolutely quiet for one and a half hours, at the end of which time he felt better. The gas went mostly anteriorly, displacing the heart somewhat to the right.

October 27. 500 c.c. nitrogen gas introduced in the sixth intercostal space below angle of scapula. Very little pain. The intrathoracic pressure at end of the introduction positive, 4 cm. water.

November 8. Pains across chest gone, cough is less, but sputum is increased and easier to raise. 500 c.c. nitrogen gas introduced. Patient felt a sharp pain back of the left shoulder for a few minutes after introduction. Heart pushed to the right, pulse rate 90, but of good quality. There is tympany throughout the left front chest, faint respiratory sounds in front, more marked behind above angle of scapula.

At third rib amphoric breathing. Right lung, respiratory sounds, exaggerated and of a harsh quality. Dullness to percussion less evident. Few râles heard.

November 11. About the same. 500 c.c. nitrogen gas introduced.

November 15. Feels better, cough persists, but expectoration is easy. 600 c.c. nitrogen gas injected into fifth interspace midaxillary line. A feeling of tension throughout left chest, some discomfort in the stomach. Heart action good. Pulse 84.

November 28. The evening following the last injection was very uncomfortable on account of discomfort in the stomach and pain in left side. Had to stay in bed all the next day. There have been no night sweats but cough and sputum about the same. 650 c.c. nitrogen gas introduced. Intrathoracic pressure 10 cm. water. Pneumothorax complete.

Absence of amphoric breathing between second and third ribs. No râles heard in left lung. Heart displaced 2 cm. to the right; action good, rate 86. Chest feels tense.

January 15. Has been pretty well. Has had to work hard and has been up several nights with a sick son. For the last ten days has coughed a good deal. On examination, pneumothorax reaches fourth rib in front. There is a return of amphoric breathing and râles in front and back. The lung has re-expanded. Patient has lost two pounds. Introduced 700 c.c. nitrogen gas. He felt better after the introduction. Râles wholly obliterated.

February 7. Cough has been less and there has been no return of pains in the chest. 1000 c.c. nitrogen gas required to complete pneumothorax. No discomfort except for a little dyspnea.

February 14. Has been working hard. Appetite rather poor. Cough about the same. 600 c.c. nitrogen gas introduced.

March 19. Much better and has gained one pound in weight. Amphoric breathing at third interspace and dry râles persist at the left apex. 700 c.c. nitrogen gas injected. Little dyspnea and slight pain. Pulse rate 84 and of good quality. Process in right lung apparently inactive.

April 15. Does not feel as strong as usual. Has been very irritable on account of business loss. He coughs less and raises much less. 200 c.c. nitrogen gas introduced. Very little discomfort.

May 1 *to May* 23. Condition remained unchanged.

May 30. Feeling better, still coughs in the morning, sputum is readily expelled. On examination there is tympany throughout left chest with diminished respiration. Few dry râles at apex. Occasional moist râles at right apex. 800 c.c. nitrogen gas injected—very little discomfort felt. X-ray taken soon after showed lung to be be completely collapsed.

June 4 *to June* 30. Condition unchanged. Attends to his business as usual. Weighs 119 pounds now. Coughs only in the morning. There are tubercle bacilli in sputum.

REMARKS.

There has been symptomatic relief; the pains in the chest have gone, the cough and sputum are markedly diminished. He has kept continually at work. His best weight, 121 pounds, has not been regained yet, the present weight being 119 pounds. He has received marked benefit from the treatment. He has not been able to come as often as he should on account of living too far away. And it has been impossible to maintain the pneumothorax complete for any length of time.

CASE 9. N. R., 28, male, married. October 28, 1911. Works indoors. Cambridge, Mass. *Family History.* Negative. *Past History.* Three years ago pleurisy with effusion, which was not aspirated. *Present Illness.* For the past nine months has had a cough, pain in the chest, night sweats, gradual increasing weakness and poor appetite. Raises considerable sputum, has been married two months. *Physical Examination.* Well developed and fairly nourished, somewhat emaciated, pale color. Weight 123 pounds. Teeth, tongue and mouth normal. *Right Lung.* Dullness, increased fremitus and bronchovesicular breathing above third rib in front and angle of scapula behind. Moist râles at apex, crepitant and fine râles scattered over the back. *Left Lung.* Dullness and râles at apex. X-ray examination by Dr. Walter J. Dodd. (See Illustration.)

November 5. 90 c.c. nitrogen gas injected into right pleural cavity, going into the fifth intercostal space in front. A solution of ½ per cent. of cocaine was used as a local anesthetic. After the introduction patient had a fainting sensation and headache. These symptoms passed off in about ten minutes. Meanwhile the patient was kept quiet, lying on the operating table.

November 9. Has been up and about as usual, 200 c.c. nitrogen gas introduced. Slight discomfort. A cold sweat came over the patient, but fifteen minutes afterwards felt well.

November 14. Has kept at work in pork factory. I have advised him to stop work for a while. The cough has been troublesome and he has had pains across chest. 100 c.c. nitrogen gas introduced.

November 20. Is not working now Feels a little better. 500 c.c. nitrogen gas injected. Very little discomfort felt.

November 28. Has been about the city most of the day and is rather tired. I prepared patient for introduction of nitrogen gas. After injecting the cocaine the patient became pale, and was faint, and vomited, so I did not give the injection of nitrogen gas. On inquiry it was found that he had not eaten for ten hours, when he had partaken of a light lunch.

December 5. Patient is not working. On examination the pneumothorax was found to extend to the sixth rib anteriorly. Respiratory sounds heard throughout lung. Crepitant and fine râles above fourth rib in front. Condition of the patient not satisfactory. 500 c.c. nitrogen gas injected in sixth interspace midaxillary line on the right. No untoward symptoms.

December 12. Patient feels a little better. Coughs less. 700 c.c. nitrogen gas injected. Except for a few râles at right apex no abnormal sounds are heard in the right lung. The pneumothorax is well marked throughout. The left lung shows increased function. There are some crepitant fine râles at apex. Heart is not displaced.

December 20. Feels better, and cough has diminished. 750 c.c. nitrogen injected. No untoward symptoms.

January 2. 1000 c.c. nitrogen gas injected. No untoward symptoms.

January 15. Patient has been feeling well. Cough bothers him very little. Stays out of doors most of the time. Weight has increased four pounds. 2000 c.c. nitrogen gas injected, producing very little discomfort. Felt little pain across midsternum. This practically immobilized the whole right lung. No râles heard in any portion of the lung. Condition of heart good.

January 30. After the last injection was a whole day in bed on account of pain across chest and in back of shoulder. Feels much improved, however. Very little sputum raised and that only in the morning.

Very few râles heard at apex and in upper half of right back. Lung has expanded—respiratory sounds heard throughout. 1700 c.c. nitrogen gas injected. Pneumothorax complete. No discomfort.

February 15. Patient is doing well. 500 c.c. nitrogen gas injected.

February 29. Has gained two pounds in weight.



CASE IX. Extensive tuberculous process involving both lungs; more marked in right than in left lung. Abscess cavity in left apex; also one in right lung, second interspace near axillary border. Type of bilateral case that has done remarkably well under treatment. The last two sputa examinations showed a rare tubercle bacillus.

General condition is good. 500 c.c. nitrogen gas injected.

March 7. 100 c.c. nitrogen gas introduced. No râles heard in any part of right lung. Condition of left lung good.

March 23. Patient has been working since the last injection. Has some shortness of breath on exertion. Otherwise feels well. 500 c.c. nitrogen gas injected. No discomfort.

March 30. Patient feeling in fine condition and has good color. There are no night sweats. Very little cough. Walks a great deal without discomfort. 100 c.c. nitrogen gas injected.

REMARKS.

This has been one of the most difficult cases to handle. As long as cocaine was used as a local anesthetic, the patient presented symptoms of cocaine poisoning. When novocaine was used instead there were no such symptoms. As soon as patient stopped work the condition began to improve. Also, notice the large quantities of nitrogen injected at a time and the rapidity of absorption. Physical exertion favors the rapid absorption of nitrogen. Considering the advanced process on the right, the considerable process in the left lung and the home condition of the patient the treatment has shown its value.

The need of frequent systematic introduction of nitrogen gas is self evident. This patient would have had a much more rapid improvement if he had come oftener so as to keep the pneumothorax under better control. After the last insufflation he moved to Montreal. He then was in splendid condition. The pneumothorax was complete in the right lung. The sputum examination showed the presence of very few tubercle bacilli.

CASE 10. F. P., 40, married. Grocer. December 30, 1911. *Family History.* Negative. *Past History.* Negative. *Present Illness.* Three years ago began to cough and there was blood in the sputum for two months. Has been to California and the Azores for the cough without obtaining any benefit. Cough is so troublesome at night that it interferes a great deal with rest. Raises large quantity of sputum. Has had several hemorrhages and has night sweats. *Physical Examination.* Weight 147 pounds. Well developed and fairly nourished, poor color. Mouth is in good condition and teeth fair. Temperature 98.9°, pulse 80, respiration 20. *Right Lung.* Dullness, bronchial breathing and increased fremitus in upper third. Moist râles scattered over this area but more marked from second rib to apex. *Left Lung.* Extensive disseminated foci throughout with a large cavity between third and fifth rib. X-ray taken before beginning treatment.

January 11. 150 c.c. nitrogen gas injected into left pleura going into the sixth interspace in mid-axillary line. Little pain felt. Kept quiet twenty minutes after the injection. Pulse remained good throughout.

January 16. 450 c.c. nitrogen gas injected in the same space. No untoward symptoms. The next day had a good deal of pain; after that felt as usual.

January 24. There has been no change in the general condition. 850 c.c. nitrogen gas injected. Felt some pain across the chest and back of left shoulder that persisted until the next day.

January 27. 1000 c.c. nitrogen injected. No untoward symptoms. The cough is more troublesome and raising sputum is a little easier. Most of the gas is in front. The left chest anteriorly is tympanitic, respiratory sounds and râles are diminished. Amphoric breathing persists between third and fifth ribs. Moist râles clearly heard at apex. Right lung still shows signs of consolidation. A few moist râles at apex. Dry and musical râles in upper third in front. Respiratory sounds increased

throughout. 1000 c.c. nitrogen injected. Slight pain in cardiac area and heavy sensation below costal margin. The heart is displaced to the right, but is working normally and rate is 84. That evening and for the next two days was not able to eat as much as usual on account of the stomach feeling full. He had a severe fit of coughing which caused him to throw up his supper, but otherwise has been well.

February 3. Pneumothorax is partially absorbed as is evident by the reëxpansion of the lung. 1000 c.c. nitrogen gas injected. Amphoric breathing still made out between third and fifth rib and râles are heard at apex.

February 29. Has slept better and has coughed less, but raises more sputum since last injection. Appetite has been good. Weight now 149½ pounds. Examination shows lung has considerably expanded since last injection. 2000 c.c. nitrogen injected with absolutely no discomfort. Heart displaced to the right.

March 12. Has been feeling well and the cough is less troublesome. Pneumothorax is partially absorbed. 600 c.c. nitrogen gas injected. No untoward symptoms. Dry râles heard over the area of consolidation in right lung.

March 19. About the same. 800 c.c. nitrogen gas injected.

March 26. Has been quite active attending to business. The cough has bothered him more but the amount of sputum is the same. Lung has expanded considerably. 600 c.c. nitrogen gas injected, apparently completing the pneumothorax. The manometer reading shows the intrathoracic pressure to be higher during respiration. Feels perfectly well.

April 2. 800 c.c. nitrogen gas was injected in the sixth interspace below angle of scapula on the left. Some pain referred to the front. Manometer shows intrathoracic pressure to be 8 cm. water.

April 10. When patient was going home after the last injection, got a fearful shaking up in a runaway accident. That night he was very sick, spat up some blood and was unable to take much nourishment for two days. Has not been as well since.

There is considerable expansion of left lung, as is evident by the increased respiratory area and the râles. 1000 c.c. nitrogen gas introduced in sixth interspace in the back.

April 17. Cough has been rather troublesome with some pain across the chest. The appetite has not been good. 400 c.c. nitrogen gas injected. Except for amphoric breathing between third and fourth ribs and some râles at apex, no abnormal sounds. Has some pain in region of stomach and a heavy sensation in left hypochondrium.

April 24 *to May* 27. The patient has come every Monday for examination and replenishment. The pain in the stomach and heavy sensation have disappeared. He has coughed about as much as usual, but no more blood has appeared. Has not had any night sweats.

REMARKS.

Advanced bilateral cases like this seem to absorb the nitrogen gas very rapidly and it is very difficult in office practice to maintain the pneumothorax to its proper volume and pressure and one has to be satisfied with only partial results. There is no doubt that the patient has received considerable benefit as is evident by the increased weight, absence of night sweats, a more cheerful disposition, and the diminished activity of the process in the right lung. The upset on account of the ride, April 10, undoubtedly is responsible for the present discomfort and slight retrogression. Examination of the sputum at varying intervals has always shown tubercle bacilli. Never any temperature when patient presented himself for the treatment.

CASE 11. C. F., 24, male, single, Lives in the North End, Boston, Mass. *Family History.* Father died of tuberculosis. *Past History.* Always well up to six months ago when he began to spit blood for two days; as he did not get any worse and blood stopped, he paid no attention to it and kept at his work. *Present Illness.* Three days ago spat up some blood. Has a slight cough, raising a little sputum. General feeling of weakness, sleeps poorly and has night sweats. Appetite poor, bowels regular. *Physical Examination.* Well developed and fairly nourished. Teeth and mouth in good condition. Evident loss of weight. Weight 130½ pounds. *Right Chest.* Dullness, increased fremitus, bronchovesicular breathing and moist râles above third rib in front and the angle of scapula behind. Scattered crepitant râles in middle lobe. *Left Chest.* Bronchovesicular breathing and a few râles at apex. Heart apparently normal.

January 27. X-ray taken by Dr. Walter J. Dodd, (see illustration) shows extensive disease of right lung, more marked in upper lobe. Left lung shows little evidence of involvement.

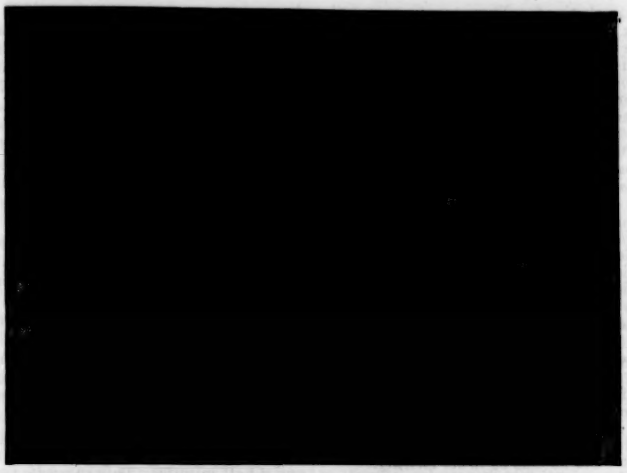
January 29. 50 c.c. nitrogen gas were injected into right pleural cavity, going into the fifth interspace on outer side of nipple line. The patient was extremely nervous but there were no untoward symptoms. The pulse was rapid, rate 110.

January 31. Except for a little soreness at site of injection, patient feels the same. 500 c.c. nitrogen gas injected as before. Felt perfectly well. Pulse rate 96. Gas is mostly in the front of the chest.

February 5. Patient has raised more sputum than usual; feels well. 500 c.c. injected in same space. There is tympany all over the anterior part of right lung, diminished respiratory sounds. Râles still heard above second rib.

February 8. Has been sleeping and eating better. Cough does not bother him much, except a little in the morning. Has gained four pounds in weight. Looks more cheerful. 500 c.c. nitrogen gas injected. A little subcutaneous emphysema developed about pectoral muscle. A feeling of constriction about neck, and a feeling of tension about chest. Nasal voice. The gas was introduced at high pressure, as it was flowing in very slowly. The manometer at end of introduction shows the intrathoracic pressure to be 10 cm. Shooting sharp pains across the right chest radiating to shoulder. Except for a few râles at right apex, the lung is practically immobilized. Patient passed an uncomfortable night due to the tension in chest and constriction about throat. Slight pain at site of injection.

February 13. Feels well, has no pain, very little sputum raised. Râles heard at apex, respiratory sounds feeble throughout right lung. When 200 c.c. nitrogen gas were introduced, patient complained of tightness about chest. The flow of gas was stopped. On examination the pneumothorax was found to be



Case XI. Plate shows extensive tubercular process involving whole of right lung. Process more marked in upper portion of lung. Left lung normal. At present time has absolutely no symptoms, attending daily to his business and enjoying good health. Unilateral case, the type that gives the best results with pneumothorax therapy.

complete for no râles were heard anywhere and respiratory sounds were indistinct.

February 27. Weight 138 pounds. "Feeling fine." Pneumothorax is still complete. Introductions of nitrogen gas have been made weekly up to the present time, the amount varying from 200 to 1600 c.c. The patient has progressively gained in weight and strength. In fact, he has never been so fleshy.

March 1 *to June* 10. Patient has come steadily for replenishments of nitrogen gas. He has steadily improved. On this last date Dr. Samuel Robinson examined him and injected 1500 c.c. nitrogen gas. The general condition is excellent. Weight 150 pounds.

June 12. Married against advice.

July 1. The right lung has completely expanded. A few râles heard at apex. Introduced 1500 c.c. nitrogen gas and advised patient to keep quiet as he was rushing about too much.

July 5. Yesterday he went to a picnic, played a game of baseball and ran in a 100-yard race. This morning he spat up some blood. He is greatly worried and was advised to follow directions. Introduced 2000 c.c. nitrogen gas into the right pleural cavity going into the fifth interspace in front. The injection was well supported, absolutely no symptoms. Patient kept quiet for half an hour, then was allowed to go home "a wiser but a sadder man."

July 6. An hour after leaving the office he spat up a little blood again. The 2000 c.c. nitrogen gas given yesterday did not completely immobilize the lung. Respiratory sounds and râles are still heard at the apex. I tested the apparatus to make sure there was no leak—none found. To-day introduced 1000 c.c. nitrogen gas without altering the pressure very much. It was positive, 8 cm. water at the end of the introduction. Tympany marked throughout right lung, no respiratory murmur or râles heard except very faint respiration at apex. Heart action good and normal rate.

REMARKS.

The improvement in the general condition of this patient has been remarkable. He has continued from the beginning to attend to his business and to live in the North End not in the best of hygienic surroundings. He raises very little sputum, which still shows few tubercle bacilli. I urged him to move into the country, which he finally did the middle of May. Against my advice he was married. He is following the treatment still and has promised to continue.

This is one of the most striking cases I have, showing the wonderful effect of a properly kept up artificial pneumothorax. I have no doubt that if this patient had been in the proper hygienic surroundings at the start there would be no tubercle bacilli in the sputum to-day.

(To be continued.)

Clinical Department

CONGENITAL PELVIC KIDNEY.

BY BENJ. BRADSON CATES, M.D., KNOXVILLE, TENNESSEE.

M. M. Single, white, age 20, consulted me in the early part of October, 1911, for a pain over her left ovary.

While the patient had never menstruated this pain occurred regularly each month about the same time, and occasionally was of sufficient intensity to require the attenton of a physician. While the pain ordinarily lasted three or four days, in more recent months it was becoming chronic with

monthly exacerbations. These continuous pains were getting on her nerves to such an extent as to cause her to lose twenty pounds in weight, and become a semi-invalid. Always with these periodical pains she could feel a tumor over the left ovary, tender on pressure, which tumor would disappear with subsidence of pains.

Present Status. A beautiful, well-formed female, weighing 120 pounds, showed on examination well developed mammae, hair in axillae, and over pubis and genitalia. A manual examination of the abdomen showed nothing abnormal until by deep pressure with hand under left kidney showed considerable depression. A tentative diagnosis of congenital absence of left kidney was made. Palpation over left ovary elicited nothing special beyond slight tenderness on deep pressure. An ocular inspection of the genitalia showed well developed external organs, and a normally situated meatus; but no semblance of a vagina other than the merest depression. I was unable with one hand above the pubis, and one finger in the rectum to find any vestige of vagina or uterus. In fact a sound in the bladder felt to my finger in the rectum as if only a thin membrane intervened. However, my finger in the rectum felt a fixed semi-solid, smooth mass. The contour of the tumor gave me no clue as to its identity.

I suggested an explanatory laparotomy which was readily accepted by the patient, as she said she wanted relief of the pain which was annoying her continually. On October 23, 1911, I opened the abdomen through the median line. There was not the least vestige of a vagina, or uterus, the ovaries and tubes were attached to either side of the pelvis by a short reduplication of peritoneum. The tumor in the pelvis proved to be a congenitally displaced left kidney. The right kidney was present in its normal position. I removed the left ovary and tube and left the corresponding organs on the right side intact.

The patient recovered from the operation satisfactorily with relief from her distressing pains and much improved in her general health, except that she occasionally complains of smothering spells and a lump in her throat—globus hystericus.

Medical Progress.

PROGRESS IN GYNECOLOGY.

GYNECOLOGY AND NEUROLOGY.—ARTIFICIAL VAGINA.—MENSTRUATION.—INTERNAL SECRETIONS.

(*Concluded from page* 815.)

BY W. L. BURRAGE, M.D., AND S. BUSHMORE, M.D., BOSTON.

Two hundred and fifty cases were examined, no attention being paid to the form of gynecological disease present. The coagulation time before, during and after menstruation was respectively 4.67 minutes, 4.72 minutes and 4.73 minutes. They were thus able to distinguish no effect of menstruation on the coagulation of the body-blood, a result in accord with the findings of most of the previous investigators. In a series of normal young women the figures were as follows: 4.53 minutes before, 4.63 minutes during and 4.64 minutes after menstruation.

In a series of women examined at various periods of time after the menopause, it was found that the coagulation time did not differ perceptibly from that of women before the menopause: 4.69 minutes before and 4.57 minutes after. The interval which had elapsed since the menopaus and the nature of the disease present seem to have no effect on the blood coagulation time. In the cases in which the ovaries were removed there was no distinguishable variation from normal and the blood immediately after operation clotted in the same time as one year later. In a small series of normal pregnant and puerperal women the blood was found to be unchanged from that in the none-pregnant condition.

The conclusions of Adler,[14] however, do not agree with those of Keller. He finds that in series of cases of genital hypoplasia, cases after the menopause, cases from which the ovaries had been removed and in castrated animals there was an increase of coagulation time of from thirty to fifty-five seconds. The coagulation time by the method employed by Adler was about two and a half minutes. This suggests two questions: (*a*) how is this delay of coagulation to be explained? (*b*) in what elements of the ovary does this regulating function lie? Adler is able to find no direct evidence that the delayed coagulation is due to increased calcium retention from decreased ovarian secretion. But this may be the case, and such an explanation is suggested by the beneficial effect of the removal of the ovaries as well as by the administration of adrenalin in osteomalacia. The exact interrelations of the ductless glands are, however, by no means clear, and various antagonistic actions reported by some investigators are denied by others. The literature is briefly reviewed.

In many patients in whom there are symptoms of ovarian cessation or insufficiency there is manifested a heightened susceptibility to adrenalin in small doses, which is to be attributed to increased sympathetic tonus. It may last for years after the removal of the ovaries. In the treatment of the symptoms of the menopause, as flushings, sweatings and so forth, calcium lactate has been used with notable results.

Adler also tested the effect of aqueous ovarian extracts and ovarian tissue juices, obtained by pressure, *in vitro* and *in vivo*. In the former there was a distinct retardation of the blood coagulation with the ovarian extract. Isolated corpus luteum juice had no such effect. In experiments on animals it was found that the aqueous extracts and tissue juices were highly toxic. Modifying the dose, it was possible to produce changes in the internal genitalia, especially the uterus, which resemble the appearances of natural rut, only much more intense hyperemia and secretion. The significance of these phenomena and others which he describes is not clear. The whole subject is so complicated that clear cut conclusions are hard to draw. Perhaps on the cessation of function of a single organ, as for

example the ovary, changes are produced in the whole organism, through the effect of complementary glands, which appear to have nothing to do with the genital glands (coagulation of the blood, calcium content of the blood, tone of the sympathetic nervous system). Thus conditions which are now attributed to anomalies of the ovarian function may possibly be made manifest through the ovary only secondarily, but are due properly to anatomical or functional disturbances of the other glands of internal secretion. The ovary is the center for the genital system, a center which, however, does not originate but transmits impulses arising in some other part of the system of ductless glands. Perhaps some amenorrheas and bleedings are to be explained in this way.

Sufficient experience has been reported to establish the position of the secretion of the hypophysis as a distinctly valuable adjuvant in obstetrics, in increasing the force and frequency of the uterine contractions. Lehmann[15] administered the extract in some form to a series of patients with various forms of gynecological disease in which the chief symptom was uterine bleeding. The cases included myomata, endometritis, bleeding at the climacteric, menorrhagias in young and adult women in whom no organic disease could be detected, retroflexion and subinvolution. The immediate effect was in general satisfactory and in some cases beneficial results at the next menstrual period also seemed to be present. Premenstrual pruritus and herpes were promptly relieved. The effect of the extract of the hypophysis is at least fourfold, (*a*) increasing the effect of the ovarian hormone, (*b*) elevating blood-pressure, (*c*) contracting smooth muscle of bladder and intestine as well as uterus, and (*d*) increasing the strength of the rhythmic uterine contractions, apparently quite distinct from (*c*). These considerations give some insight into the classes of cases in which it might be useful. The series of cases studied is too short to be more than suggestive for further work. The method employed was preferably hypodermic injection into the muscle of the gluteal region. Rarely was there complaint of pain; once faintness followed.

Aschner[16] reports an experimental study of the hypophysis based on operations on animals. After extirpation of the hypophysis in the first three months of life, marked diminution of the interstitial glands of the ovary is evident in about six weeks after operation. There is apparently an increase in these glands later, but there is marked retardation of the development of the follicles of the ovary, the ovary itself being smaller than normal and in an infantile condition. Signs of rut appear but much later than normal, and instead of finding several ruptured follicles or corpora lutea in each ovary (normal), only one was found in the animals operated on. In no case did an animal from which the hypophysis had been removed become pregnant. The other genital organs besides the uterus remain in an infantile state, but the changes are by no means like those of castration atrophy. In adult animals removal of the hypophysis is followed by only slight regressive changes; the extensive changes noted by several operators who use the intracranial method are due to injury of the adjacent brain tissue and are not found after the oral method. In adult animals with preservation of the hypophysis but with injury of the brain, there were actually more regressive changes in the genitalia than after simple removal of the hypophysis. Abortion followed removal of the hypophysis promptly in two or three days, care being taken to avoid shock by using a two-stage operation.

Under physiological conditions the hypophysis undergoes its greatest functional and morphological changes in pregnancy. Whether there occur during puberty and menstruation hyperemic changes analogous to those in the liver and thyroid has not yet been determined. Under pathological conditions the relation between hypophysis and ovary is shown, after castration, in the increase in size of the hypophysis, changes in the skeletal growth and tendency to adiposity. Similar relations exist in gigantism and acromegaly and the first symptom of the latter condition may be impotence, sterility or amenorrhea. It must not be forgotten, however, that many of the symptoms which appear with hypophysis disease in connection with other brain disease are not to be attributed to the hypophysis alone but may be due to the brain changes which co-exist.

The pineal body has not received much attention though it has been known for some time that the epiphysis is not simply a rudimentary organ as was formerly thought. The technical difficulties in the way of direct experiment on the pineal gland are considerable. Biach and Hulles[17] undertook an indirect method, namely, removing the sexual glands of young animals and later studying the pineal glands. The results were uniform, a diminution in the number of the characteristic cells in the glands and an atrophy of the cells themselves. The clinical picture of disordered pineal function is not always clear, although the diagnosis of pineal tumor has been made from the symptom complex of abnormal longitudinal growth and premature sexual development of both primary and secondary sexual characteristics. The reconciliation of the experimental findings with all the clinical facts is not easy, for both atrophy and hypertrophy of the genital organs have been found with pineal affections. However, the effects of the removal of the sexual glands, causing atrophy of the epiphysis and hypertrophy of the hypophysis, seem to indicate a certain antagonism of these two organs.

A critical study of the alleged causes of uterine bleeding, apart from malignant new growths, shows how little foundation there is for the claims for endometritis, erosions, polyps and even certain forms of myoma to considerable

etiological significance. The ovary, too, has received attention and chronic oöphoritis with increase in connective tissue, sclerosis of the walls of the vessels and thickening of the albuginea, has been held responsible. But there is lacking this fundamental knowledge, namely, the relation between the anatomical structure and the function of the organ, knowledge particularly difficult of attainment in the case of a gland of internal secretion. We know in a general way that the uterus and the bleeding from it are under the control of the ovary, for the bleeding stops or does not appear if the function of the ovary is absent. It is not possible, however, to artificially stimulate the ovary to oversecretion, cause increased uterine bleeding and study the changes in the oversecreting ovary. In the absence of exact knowledge it is unscientific to hold "small cystic degeneration of the ovaries" responsible for uterine bleeding, as is so frequntly done. An indirect way by which light may be thrown on the subject is the condition of the blood and the circulation, which Schickele[18] has studied with care and at some length.

Schickele had previously observed that both *in vitro* and *in vivo* tissue juices and extracts from the ovary and uterus exert a retarding influence on blood-coagulation. These experiments were repeated and the results confirmed. The material used had been removed at operation and the histories of the patients could be studied. In those cases in which no abnormal bleeding had occurred, the influence of the ovaries was more marked than that of the uterus. In the cases in which severe menstrual bleedings had occurred, the effect of the uterine extract was more prominent than that of the ovarian. The mucous membrane of the uterus was more effective than the myometrium; and myoma less effective than uterus. This retarding effect found in young women was not found in women who were bevond the menopause, or if present was markedly less. If the tissue juices or the extracts were injected intravenously the blood-pressure was lowered, due to a peripheral dilatation. This property of lowering the blood-pressure seemed to be common to the whole ovary, to the corpus luteum alone and to the tubes and the uterus in about the same degree. The follicular fluid was inert in regard to blood pressure and blobd coagulation. Previous or simultaneous injection of pituitrin or adrenalin prevents the effect of the tissue juices, and conversely the tissue juices prevent or markedly diminish the effect of adrenalin or pituitrin. The menstrual blood also has an inhibitory action on blood clotting.

Menstruation, then, may be explained as follows: The substances which cause menstruation are produced in the ovary, because if the ovary is removed menstruation does not occur. They enter the circulating blood and accumulate in the uterus. As they accumulate they cause dilatation of the vessels especially in the endometrium. At a certain point of dilatation serum escapes from the vessels and the premenstrual congestion and edema are present. When this has reached a maximum the non-coagulable blood and exuded fluid escape into the uterine cavity. The bleeding ceases when the substances which produced the dilatation of the vessels and the non-coagulability of the blood have disappeared from the endometrium. While this is by no means an explanation of all the functions of the ovary, it agrees with many of the well known facts of menstruation and pregnancy.

In experiments on castrated animals injections of ovarian extract produced distinct signs of heat. Clinically, in several cases hyperemia of the external genitalia was produced, and cases of kraurosis vulvae were completely relieved of symptoms after several injections, while the local hyperemic changes were in marked contrast to the previous atrophy of the skin.

The old theory that menstruation is a purifying process receives confirmation from this experimental work. The substances which, arising in the ovary and accumulating in the uterus, prepare the endometrium for the nidation of the ovum, become useless and superfluous if impregnation does not take place, and are, therefore, thrown out of the body, to be replaced as time goes on by new accumulations. The non-clotting of the blood in the placental circulation in all its stages is of vital importance to the fetus, and placental blood does actually contain substances which prevent or retard clotting.

Hypothetical changes in the internal secretion of the ovary account for many of the anomalies of menstruation in which there is found no organic disease even of the endometrium, but changes in the tonus of the sympathetic system causing dilatation of the blood vessels must also be taken into account. There are many purely functional anomalies of menstruation which, if left alone, tend to correct themselves. Besides the frank disturbances in the onset and course of menstruation there occur slight departures from a perfectly regular menstrual flow. The more carefully the question is gone into, the more frequently slight variations are found, depending on some functional cause quite apart from any local disease.

Keeping in mind these conceptions of the cause of uterine bleeding, certain diseases of the uterus and their symptoms may be considered. Endometritis, once a well recognized and important clinical entity, has lost its prominent place, for in the majority of the cases so diagnosed there is no inflammation of the endometrium. The symptoms of uterine discharge and excessive menstruation, as well as the histological changes in the endometrium, may be accounted for on the basis of overfunction of the ovary. The immediate but not permanent relief given by curettage is explained by the removal with the curette of that part of the organ in which are accumulated the substances which prevent blood clotting and thus give rise to excessive

bleeding. When the endometrium regenerates the symptoms recur. The bleedings with "chronic metritis," certain forms of myoma and polyps have a similar explanation; but naturally it is not the ovary alone which is concerned, the whole nervous system and the other glands of internal secretion probably have their part. Following castration and at the climacteric the substances from the ovary which cause lowering of blood pressure disappear. Through the continued function of the other glands of internal secretion which are antagonistic in action, the blood pressure rises and there is produced a heightened tonus of the sympathetic system also, from which the symptoms of the menopause arise.

Schickele presents his conclusions, not as final, but merely as an attempt at a new interpretation. The accepted teaching in regard to normal and pathological bleeding from the uterus does not meet scientific demands and the time has come for us to readjust our views to now well known facts.

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Book Reviews.

Symptoms and Their Interpretation. By JAMES MACKENZIE, M.D., LL.D., Aberdeen and Edinburgh. Second edition. New York: Paul B. Hoeber, Publisher. 1912.

The appearance of the second edition of the book testifies to the cordial reception it has had. It is a certain relief in these days of much bookmaking to have an author approach his subject from a somewhat new standpoint. This Dr. Mackenzie has succeeded in doing by his method of discussing symptoms and their significance. We commended this book before and have no reason to change the opinion then expressed although, as the author states in his preface there may be some difference of opinion as to visceral pain, this in no way militates against the general usefulness of the book and in fact rather enhances it. The subject matter is well arranged and the type large.

Fifth Scientific Report on the Investigations of the Imperial Cancer Research Fund. Under the Direction of the Royal College of Physicians of London and the Royal College of Surgeons of England. By DR. E. F. BASHFORD, General Superintendent of Research and Director of the Laboratory. Published by the Authority of the Executive Committee. London: Taylor and Francis. 1912.

This fifth scientific report of the British Imperial Cancer Research Fund represents the investigations carried out during the first half of the current year. It is "concerned with the nature of the resistance which may be artificially produced to the inoculation of cancer and the bearing of the results on the biology of the tumor cell." It consists of four papers, by Drs. Russell, Woglom, DaFano, and Higuchi. The third of these "is a somewhat abridged translation of a paper which has already appeared in German." The three others are new contributions to the knowledge of the subject. Together they afford "additional evidence that tumor or normal tissue produces immunity only when it is derived from the same species of animal as that on which the test is made, and that the immunity produced by these substances is of the same nature." The report is illustrated by numerous beautiful plain and colored micrographic plates, and forms a further valuable addition to the literature of this momentous subject.

Public Health Chemistry and Bacteriology. By DAVID MCKAIL, M.D. (Glasg.), D.P.H. (Camb.), F.R.F.P.S.G. New York: William Wood and Company. 1912.

This book by a Scotch doctor is based on the author's notes compiled in preparing lectures and demonstrations for his class. It is intended as a handbook for candidates for the doctorate of public health. Though not illustrated, and its preface modestly disclaiming originality, it shows, nevertheless, the personality of its writer, and has thereby a quality rare in modern scientific text-books of any sort, in that it stimulates the student's imagination. The appendices on British regulations for the diploma in public health, and on preservatives in milk and cream, are of little concern to American readers, but that on bovine and human types of tubercle bacilli is important.

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DANGER IN BREWERIES FROM METHYL ALCOHOL.

It is recognized that poisoning from methyl alcohol may arise from swallowing it, either alone or as an adulterant in cheap whiskey, from absorption through the skin, and from inhalation of the fumes. The latter method is illustrated in a case of acute poisoning reported in the *Survey*[1] lately where two men were engaged in varnishing the interior of a large beer vat in a New York brewery, with varnish containing methyl alcohol. On the third day, one of the men became totally blind and the other died. The death certificate stated the cause of death as epilepsy, but the coroner's autopsy and the history of the case showed the cause of death to have been methyl alcohol poisoning.[2]

The *Bulletin of the New York Department of Labor*[3] states that these vats are of wood, standing from eight to ten feet in height, and having a small opening, a few inches in diameter, in the top, for the entrance of pipes, and an oval opening in the side near the bottom, barely large enough for a man to crawl through. In the case described the men worked from 7 a. m. to 5 p. m. on the first day. Each vat required thirty minutes in varnishing, following which the men had twenty minutes in the open air. The closely confined space in the vat, together with the warmth, resulted in the inhalation of the fumes.

An especially regrettable feature is that methyl alcohol is not necessary for the composition of the varnish used, but it costs 50 cents per gallon where grain alcohol costs $3.00 per gallon. As six gallons of varnish are used for each vat, this means a saving of about $15.00 per vat, and amounts to a large amount in a brewery having several hundred vats. Here again financial interests control the situation and supersede considerations of health and sanitation.

The Department of Labor has described this case in a pamphlet which has been sent to every brewery in the state. The pamphlet contains the following statement, "This article is being sent to all proprietors of breweries in this state in order to bring to their attention the danger to employees attending the use of wood alcohol in such work. The case here described would seem to make it clear that both motives of humanity and possible liability for damages ought to lead brewery proprietors to use every means to avoid such apparently easily preventable disasters."

The more progressive brewers are using glass or enamel lined vats which require no varnishing.

[1] The Survey, Nov. 23, 1912, pp. 211.
[2] Bulletin of the New York Department of Labor, June, 1912.
[3] White, Frank Marshall: Fair Play, Apr. 20, 1912.

PROGRESS OF THE BALKAN WAR.

AFTER a brief renewal of hostilities, an armistice was again arranged at Baghtche on Dec. 3 between the Turks and the Balkan allies, this time apparently with a better prospect of permanency, for a peace conference of plenipotentiaries from the respective countries has been called to meet at London on Friday, Dec. 13. Meanwhile the epidemics of cholera and typhoid fever continue to extend. Report from Vienna on Nov. 29 states that Crown Prince George of Servia is seriously ill with the latter disease. Report from Paris on Dec. 2 states that Crown Prince Danilo of Montenegro received a perforating gunshot wound of the abdomen during the assault on Scutari, and that resection of the intestine has been performed on him. At Constantinople the distress of the sick and wounded is extreme. The Turkish Red Crescent is said to have collected and spent the equivalent of $325,000 on the Turkish hospitals, but this provision has not extended to the cholera camps, where most of the work has been done by foreigners. A Dutch Red Cross contingent left Sofia on Nov. 29 to take charge of the cholera camp at Tehatalja. The United States War Department has detailed Major C. S. Ford of the Army Medical Corps to temporary duty in charge of the American Red Cross relief work. The total of Massachusetts subscriptions to the Red Cross Fund is now $5,728.81.

NEW DATA ON LEAD POISONING.

A recent issue of the *Survey*[1] notes the fact that a certain New York factory uses large quantities of molten lead as a tempering agent. Nine men were employed here and in the one year of its operation nine cases of lead-poisoning have developed. The *Survey* quotes Edward E. Pratt who has recently made a study of occupational diseases for the New York Factory Investigation Commission. Pratt found 376 cases of lead poisoning in New York within the last three years. It is estimated that this represents not over half of all the cases. A striking feature of the report is the ignorance and indifference shown by factory officials and the companies concerned as well as by the work-men themselves regarding the dangers of lead and the necessary precautions.

One hundred and nine cases were thoroughly investigated. Of these, 62 ate their lunch in the work-room; 22 had not been in the habit of washing before eating; 45 who did wash used only cold water and in some cases they provided none. In only 17 instances had any instructions been given as to the danger of the work or as to proper hygienic measures.

Pratt offers a long list of recommendations including the licensing of the industries in which lead or other dangerous factors appear. Employees should receive a physical examination monthly and the factories should be under the close supervision of a medical inspector so that a man having once developed lead-poisoning, could not be employed again in a lead industry without specific written permission from this inspector. Ventilation and abundance of hot and cold water should also be provided for bathing. Occupational histories of 97 men are published in the report. Wide publicity, as advocated and practiced by the *Survey*, is one of the best means of improving conditions in the fight against industrial diseases.

[1] The Lead Workers: The Survey, Nov. 23, 1912, p. 229.

AN ACT OF JUSTICE TO THE MEDICAL PROFESSION.

A well-deserved victory has been won in Boston lately for the medical profession by some of its members with regard to the regulations governing the use of motor-cars in this city. The board of street commissioners recently undertook to enforce universally the traffic rule providing that "no vehicle shall be left standing on a public street for more than 20 minutes." A special qualification exempts from this rule the vehicle of a physician stopping at a patient's house, and the rule has hitherto been held not to apply to a doctor's car left standing in front of his own office. The literal enforcement of the rule under the latter circumstances would obviously work much hardship and injustice; and upon its proposal, a petition, signed by 665 members of the Suffolk District Medical Society, was forwarded, with a letter of protest, to the street commissioners. A public hearing was held, at which the case for the doctors was so ably presented by several physicians of this city that it has been determined by the commissioners to make a special provision, to go into effect on Dec. 15, exempting physicians from the operation of the above regulation. The cordial thanks of the profession are due to those of its members whose prompt and energetic action secured this measure of justice in its behalf.

MEDICAL NOTES.

Honors for Dr. Smith.—The British Royal Society has recently awarded a Royal gold medal to Professor Grafton Elliot Smith, F. R. S., for his researches on the comparative anatomy of the brain. Dr. Smith has also been nominated a councillor of the Society for the year 1913.

A New British Medical Historical Society.—On Nov. 20 was held in London the first meeting of a new society for the study of medical history, recently established as a section of the Royal Society of Medicine.

Portraits of Philadelphia Physicians.—On Nov. 6 there were presented to the College of Physicians, Philadelphia, portraits of the late Drs. John H. Musser, Isaac Hays, and Wharton Sinkler, with addresses by Drs. George A. Piersol, George E. DeSchweinitz and James C. Wilson.

Collective Investigation of Ulcer of the Stomach.—At the invitation of the German Committee organized for "A Collective Investigation of Ulcer of the Stomach," a similar committee has been formed in this country, consisting of Drs. George Brewer, Warren Coleman, Max Einhorn, James Ewing, J. M. T. Finney, Arpad G. Gerster, John C. Hemmeter, Frederic Kammerer, J. Kaufmann, William J. Mayo,

Willy Meyer, William Gerry Morgan, John B. Murphy, Franz Pfaff, William L. Rodman, Charles G. Stockton and John S. Thacher.

The American Committee seeks the co-operation of all physicians, surgeons and pathologists who may be willing to assist in the investigation. Due credit will be given in the published analysis of the cases to all who send histories and anatomical specimens.

Directions for preserving and forwarding the anatomical specimens are given upon the history and autopsy blanks. The autopsy reports should be sent with the specimens to Professor Ewing. The clinical histories may be forwarded with the specimens, or may be sent direct to the Secretary, Warren Coleman, 58 West 55th Street, New York City.

A CENTENARIAN.—Mrs. Elizabeth Thompson, a negress, who died last week at Paterson, N. J., is alleged to have been born in 1797. Her husband is said to have lived to the age of 109. She is survived by 21 of her 22 children, and by 50 grandchildren.

HARVEY LECTURE.—The fifth in the current series of lectures before the Harvey Society will be given at the New York Academy of Medicine on Saturday of this week, Dec. 14, by Dr. Frank B. Mallory, associate professor of pathology at the Harvard Medical School, on "The Infectious Lesions of Blood Vessels."

A HEAVY WOMAN.—Justine Masson, who died on Nov. 28 in a hospital for the insane at Montreal, Canada, is said to have weighed 780 pounds. She was supposed to have been the heaviest woman in the world.

FRENCH BIRTH-RATE AND ARMY RECRUITS.—On account of the steadily declining birth-rate in France, the number of new able-bodied male recruits available for the French army is said to have fallen from 238,000 in 1906 to 215,000 in 1911.

BOSTON AND NEW ENGLAND.

PENALTY FOR AN UNREGISTERED PRACTITIONER.—Before the Boston municipal court recently a woman, resident in this city, was fined $100 for practicing medicine without being registered as a physician.

VICTORIAN MEMORIAL ASSOCIATION.—The fifteenth annual meeting of the Victorian Memorial Association was held recently in Boston. This Association maintains a free bed in memory of Queen Victoria at the Massachusetts General Hospital.

SMALLPOX IN BOSTON AND WINTHROP.—A case of smallpox was reported lately at South Boston, in the person of a young man who had recently returned to this city from Portland, Me. The patient was immediately isolated, his house quarantined, and all persons with whom he had come in contact were vaccinated. Another case of smallpox was discovered last week in Winthrop, Mass., the patient being a Boston hotel waiter who came to this city on Oct. 5 from New Brunswick.

NEW YORK NOTES.

WORKMEN'S COMPENSATION LAW.—Under the auspices of the National Civic Federation a conference, attended by about one hundred delegates, representing various industries and labor organizations in the country, was held in the rooms of the New York Board of Trade and Transportation on November 25, for the purpose of endeavoring to secure in all the States of the Union a uniform workmen's compensation law. The Federation has made a long and careful study of the subject, and the conference was determined upon at this time for the reason that within the next six weeks the legislatures of thirty-eight States will convene, and in order that a tentative law might be framed which would be acceptable to the various States.

PATRICK PARDONED AT LAST.—The pardon by Governor Dix of Albert T. Patrick, convicted of the murder of the aged millionaire, William M. Rice, after Patrick's persevering fight for liberty, lasting twelve years and involving twenty-four appeals, meets with the hearty approval of the general medical profession. The case against him rested principally on the testimony of the valet, Jones, who, it was alleged, was induced by Patrick to put Rice to death by means of chloroform; yet Jones gave no less than five different accounts of his actions, each largely contradictory of the others, and while the accused may possibly have been guilty, the fact is now conceded that he was not proved so. The congestion of Rice's lungs found at the autopsy, which was not made until after the body had been embalmed, was relied upon by the prosecution to show that his death was caused by chloroform; but a year ago a demonstration made, under the direction of the New

York Medico-Legal Society, upon a cadaver, with the same embalming fluid used in this case, showed conclusively that this fluid, when injected into the vascular system, was capable of producing the congested appearance of the lungs found at the Rice autopsy.

GERMAN HOSPITAL NURSES RECEIVE DIPLOMAS.—The graduating exercises of the training school for nurses of the German Hospital and Dispensary were held on Thanksgiving Day; when diplomas were awarded by the president of the school, Mr. Kuttroff, to twenty-two young women who had completed the three years' course. The principal address was made by Dr. George L. Laporte of the medical staff of the hospital.

FIRE AT THE BRUNSWICK HOME.—At a serious fire which occurred at the Brunswick Home, at Amityville, Long Island, a large institution for alcoholics, paralytics, epileptics and feeble-minded persons, all the inmates were rescued; but one patient of the feeble-minded class, while unobserved, crept back to the burning building and was suffocated.

VITAL STATISTICS FOR SEPTEMBER.—The condensed quarterly report of the Bureau of Records of the New York City Health Department for the three months ending September 30, 1912, shows that in the total deaths from all causes there was a decrease of 3,781 from the average in this quarter during the past five years, while in the deaths under 5 years there was a decrease of 2,527. Among the various causes of death the most pronounced decreases (more than 100) from the quinquennial average were the following: diarrheal diseases under 5 years of age, 1,555; pulmonary tuberculosis, 347; bronchopneumonia, 196; apoplexy and softening of the brain, 112; diphtheria and croup, 110. In persons 65 years old and over there was an increase of 109, but the only causes of death in which there was any increase whatever were organic heart diseases (150), congenital debility and malformations (110), cancer, (25), and influenza (4).

Current Literature.

MEDICAL RECORD.

NOVEMBER 23, 1912.

1. LUSK, G. *Calorimetric Observations.*
2. WILLIAMS, E. M. *Etat Vermoulu—A Form of Senile Cortical Degeneration.*
3. FRIEDMAN, G. A. *A Case of Chronic Pancreatitis with Polycythemia.*
4. LEWIS, R. *A Large Abscess of the Temporo-Sphenoidal Lobe, Complicating a Chronic Purulent Otitis Media.*
5. JACOBSON, A. C. *Literary Genius and Manic-Depressive Insanity, with Special Reference to the Alleged Case of Dean Swift.*
6. SANDERS, G. *Bacterin Treatment in Pulmonary Tuberculosis.*
7. CRISTADORO, C. *The Milk Supply.*

NOVEMBER 30, 1912.

1. CORNING, J. L. *The Psychology of the Gambling Habit. A Study of Suspense.*
2. OPPENHEIMER, S. *The Pro and Con of Maintenance of the Retro-Auricular Opening after the Radical Mastoid Operation.*
3. MAYS, T. J. *Effect of Present Prevention of the Spread of Consumption.*
4. HARVEY, T. W. *Claudius Galen, 131 A. D. to 200 A. D.*
5. MAGILL, W. S. *The Importance of the Local Laboratory in Medical Practice.*
6. GROSS, M. *Disinfection of the Intestine by Insufflation of Oxygen.*

NEW YORK MEDICAL JOURNAL.

NOVEMBER 23, 1912.

1. HILL, E. C. *Acute Poisoning.*
2. BENEDICT, A. L. *The Relation of Pregnancy to Certain Conditions of the Digestive Organs.*
3. HUBER, J. B. *The Teaching of Pulmonary Diseases.*
4. BRADFORD, T. H. *The Insurability of Women.*
5. BASKERVILLE, C. *Air Impurities (To be continued).*
6. STEINHARDT, I. D. *Ten Sex Talks to Girls. X.*
7. BRENNEMAN, R. E. *The Use of Mixed Infection Vaccines in the Treatment of Myalgia and Arthritis.*
8. MORTIMER, J. L. *Therapy of Syphilis.*
9. VAN SWERINGER, B. *The Value of Meteorism or Tympany in Peritonitis.*
10. LANE, W. A. *Chronic Intestinal Stasis.*

THE ARCHIVES OF INTERNAL MEDICINE.

OCTOBER 15, 1912.

1. *WELLS, H. G. *The Fat Metabolism of Lipomas.*
2. *AUSTIN, J. H., AND EISENBERG, A. B. *The Utilization of Parenterally Introduced Serum.*
3. WRIGHT, T. H., AND ALLAN, W. *"Low Fever."*
4. BURNAM, C. F. *An Experimental Investigation of the Value of Hexamethylenamin and Allied Compounds.*
5. TAUSSIG, A. E. *Complete and Permanent Heart-Block Following the Use of Digitalis in Auricular Fibrillation.*
6. HOSKINS, R. G., AND MCCLURE, C. W. *The Adrenal Glands and Blood-Pressure.*
7. *SMITHIES, F. *The Diagnostic Worth of the Glycyltryptophan and the Tryptophan Tests in Diseases of the Stomach.*
8. STOCKARD, C. R. *An Experimental Study of Racial Degeneration in Mammals Treated with Alcohol.*
9. SCHALLER, W. F. *Progressive Interstitial Hypertrophic Neuritis of Childhood of Dejerine and Sottas.*

1. Wells summarizes as follows his experimental investigations on the fat metabolism of lipomata:—

"The literature lacks satisfactory evidence to establish the generally accepted statement that simple subcutaneous lipomas do not give up their fat to the body during emaciation, although there are certain more or less incomplete observations in support of

this contention, and also definite cases which are entirely at variance with it; there is no question that it is correct for fatty sarcomas. All reported analyses indicate that the fats of lipomas are identical with the fats of normal fat deposits. A series of experiments has also failed to indicate any lack of ability on the part of lipoma tissue to hydrolyze various fats and esters which are also hydrolyzed by normal fatty areolar tissues. No reliable method could be devised which would indicate whether lipomas and normal fat tissues differ in their quantitative action on fats and esters. Lipoma fat is hydrolyzed by pancreatic lipase as readily as is normal human adipose tissue."

2. As a result of their experiments on the utilization of foreign proteins by the animal organism the authors reach the following conclusions:—

1. In order to use changes in the elimination of nitrogen as a basis for deductions concerning the utilization of nitrogenous substances parenterally introduced, the animal must be on a calorically adequate, nitrogen-free diet.

2. A dog on such a diet and receiving intravenously an amount of nitrogen, in the form of dog-serum, approximately equal to that being eliminated, shows no increased elimination of nitrogen.

3. When a foreign serum, as horse-serum, is injected instead of dog-serum, the nitrogen elimination is increased very little, if at all.

4. The dog, therefore, is able to utilize completely for anabolic processes the protein of dog-serum and all, or almost all, of the protein of horse-serum introduced intravenously.

7. From this report of 1175 cases of gastric disease studied by a uniform method, Smithies makes the following conclusions:—

1. In our series, more than one-third of the proved cases of cancer of the stomach gave positive glycyltryptophan reactions; more than one-fourth were lactic-acid-positive and about one-thirteenth of the number exhibited the tryptophan test. Diagnosis of malignant disease of the stomach was in each case quite possible, independent of the above chemical reactions. As a test associated with cancer of the stomach, it will be seen that in our series the glycyltryptophan reaction proved more consistent than tests for common organic or existing free amino-acid (tryptophan).

2. While gastric conditions other than cancer exhibit positive glycyltryptophan reactions, in no single class of diseases of the stomach is this test obtained so frequently as in cancer. The fact is of considerable significance chemically and, perhaps, etiologically. While cancer of the stomach can doubtless be diagnosticated clinically without the glycyltryptophan test, one cannot state that the study of this and allied reactions will prove valueless.

3. Our work does not show that the tryptophan test is, as has been advanced, pathognomonic of cancer.

4. Low free hydrochloric or total acidity is frequently determined in gastric contents exhibiting positive glycyltryptophan, lactic acid and tryptophan reactions. One cannot state positively that this diminished acidity is causative. Many cases of low acidity were negative to the above tests.

5. Approximately one-half of the positive glycyltryptophan and tryptophan reactions were in gastric extracts containing bile and blood elements. Approximately one-fourth of the negative extracts contained blood and bile elements. [R. M. G.]

NOVEMBER 15, 1912.

1. BROWN, T. R. *The Influence of Radium and of Its Decomposition Products on the Ferments.*
2. FOSTER, N. B. *Pathological Deviations in the Chemistry of Uremic Blood.*
3. *CARTER, W. S. *The Effect of Intraspinal Injection of Ringer's Solution in Different Amounts Under Varying Pressures.*
4. DARLING, S. T. *Two Cases of Anaphylactic Serum Disease Six Years After the Primary Injection of Horse-Serum.*
5. *DUKE, W. W. *The Pathogenesis of Purpura Hemorrhagica with Especial Reference to the Part Played by Blood-Platelets.*
6. *BATES, L. B. *The Wassermann Test in the Tropics.*
7. *WOOD, F. C. *Poisoning by Nitric Oxid Fumes.*
8. *MCLEAN, F. C. *Organic Iodin Preparations, Their Pharmacology and Therapeutic Value.*

3. In this paper, undertaken as an experimental inquiry into the cause of the severe shock sometimes following the injection of serum into the spinal canal, Carter aims to determine the mechanical effect, on the spinal and medullary centres, of increasing the amount and pressure of fluid in the spinal subarachnoid space with Ringer's solution. As a result of his investigations, he reaches these conclusions:—

1. No definite limit can be fixed to which the intraspinal pressure may be increased with safety. In some animals serious symptoms developed when it was increased to 10 mm. of mercury, while in others this only occurred with a pressure of 50 or 60 mm. of mercury.

2. The normal intraspinal pressure in dogs varies from 3 to 10 mm. of mercury, or 40 to 135 mm. of water. A *sudden increase* of pressure, even though a small amount be given, is more dangerous than a larger amount given gradually by gravity.

3. The first mechanical effect of increasing the intraspinal pressure from injections made by lumbar puncture is the cessation of respiration; quickly following it, or coincidently with it, there is profound cardiac inhibition, which causes a tremendous and sudden fall of blood-presure. The fall of pressure is often so abrupt that it frequently drops from normal to zero within a half minute.

4. Atropin removes the cardiac inhibition and restores blood-pressure by its paralyzant effect on the cardio-inhibitory nerve center.

5. Atropin fails to stimulate the respiratory center, while cocain is the most valuable respiratory stimulant for such an emergency.

6. These drugs should be given together in full doses before making a spinal puncture or intraspinal injection. The injection at the site of spinal puncture would also produce local anesthesia. The condition could thus be prevented more easily than it can be remedied after alarming symptoms suddenly develop. This is particularly true if chloroform is used as an anesthetic, as the inhalation of chloroform in concentrated vapor produces similar effects and thus makes the condition more serious.

7. The fall of pressure is not due to a vasomotor disturbance. There is, therefore, no indication for the administration of epinephrin. On the contrary, it is positively contra-indicated on account of its well-known action in producing cardiac inhibition.

8. Lowering the intraspinal pressure by allowing fluid to escape from the needle after the characteristic symptoms develop, fails to relieve the condition.

9. The advantage of using atropin and cocain before intraspinal injections consists not only of lessening the dangers of sudden death, but it enables a *larger amount* of fluid to be injected without producing dangerous symptoms from the mechanical effect. This is a great advantage in administering antimeningococcus serum, as its action is chiefly a direct, local one on the living bacteria and the benefits are in proportion to the amount administered.

5. As a result of his clinical and experimental study on the etiology of purpura hemorrhagica, Duke reaches the following conclusions:—

1. In typical cases of human hemorrhagic purpura the characteristic feature in the blood-picture is an enormous reduction in the number of blood-platelets.

2. Hemorrhagic diathesis can be followed best in this disease by determining the bleeding time at frequent intervals. The simple observation of purpura, spontaneous hemorrhage, etc., may lead to false conclusions in regard to the general condition, for these

symptoms are often due to general and local causes combined.

3. When there was opportunity to make such observations it was noted that the disease appeared when the platelet count fell to an extremely low level, persisted so long as the count remained low and disappeared as soon as the count rose.

4. The disease was relieved immediately in two cases by direct transfusion of blood. The relief was coincident with an increase in the platelet count, evidently a direct result of the transfusion. Symptoms returned when the platelet count fell again.

5. The disease was produced in rabbits by reducing the platelet count with diphtheria toxin. The disease appeared the day the platelet count descended to a point of almost complete absence and persisted until the platelet count rose. Hemorrhagic diathesis in mild form was brought about with repeated injections of benzol. In the latter experiments the count did not descend to such a low level as in the former.

6. In a series of 38 animal experiments, in which the platelet count was enormously changed with subcutaneous injections of benzol, diphtheria toxin and tuberculin, and also in a large series of cases in humans in which routine platelet counts were made, only those having extremely low counts gave the complete symptom-complex described above. Several platelet counts between 40,000 and 75,000 were observed in patients who had no marked tendency to bleed. This seems to be the level at which patients may or may not have an abnormal tendency to bleed. No counts lower than these were observed in patients not subject to hemorrhage.

7. The disease has been observed complicating a varied set of diseases—in severe form in lymphocytic leukemia, hemorrhagic small-pox, tuberculosis, nephritis, benzol poisoning, aplastic anemia and diphtheria. The one feature in common in these cases was the low platelet count and the modification of the clot dependent on it, *i.e.* absence of retractility. Purpura hemorrhagica of the type described would seem, therefore, a symptom, not a disease. It is caused apparently by any agent which reduces the platelet count to a sufficient degree.

6. From his experience with the use of the Wassermann test in the tropics, Bates derives the following conclusions:—

1. Guinea-pig serum must be tested for native antihuman hemolysin in certain localities and all sera in which they are found discarded.

2. Malarial infection does not affect the Wassermann reaction (Noguchi modification).

3. Our cases of filariasis, yellow fever, blackwater fever and amebic dysentery all gave negative reactions. Their number is too small to draw conclusions from.

4. Two out of three uncomplicated cases of yaws gave positive reactions.

5. The Wassermann test is of great value in cases of arthritis of uncertain etiology.

6. The Wassermann test should be made an aid to the pathologist in a considerable number of autopsies.

7. Wood reports a case of fatal poisoning by nitrogen tetroxid fumes accidentally inhaled from a large vessel containing considerable quantities of nitric acid and a cadmium-silver alloy. He also collects from the literature 293 cases of similar poisoning, of which 73 were fatal. From these and from a study of 13 experimental cases in dogs, with 7 fatalities, he draws the following conclusions:—

1. The inhalation of even small quantities of nitrogen tetroxid gives rise to an exceedingly dangerous pulmonary condition with a characteristic lung lesion both in man and in animals.

2. As there is no satisfactory treatment of the condition it is of the utmost importance that careful instruction be given to all factory laborers or laboratory workers who have to handle concentrated nitric acid as to the dangers incurred and the means of avoiding them.

8. From a careful pharmacological and experimental study of the organic iodin preparations. McLean makes the following conclusions with regard to their therapeutic uses:—

1. Up to the present it has not been shown that the organic iodin preparations, with the exception of preparations of thyroid, have any specific action in pathologic conditions, except the action of iodin after separation from the molecule.

2. The iodized proteins seem to be of advantage for therapeutic use only in so far as they avoid gastric irritation. The more stable compounds are apparently not entirely split in the body and are, therefore, not well utilized, while the less stable compounds have no advantages over the alkaline iodids, either as to local effects, or as to rapidity of absorption and excretion.

3. The iodized fats and fatty acids appear to have some advantage when the continuous action of small amounts of iodin is desired. They are more slowly and evenly split, and the amount of available iodin in the blood does not vary from time to time to the extent that it does when the alkaline iodids are administered. The use of the iodized fats in such conditions as arteriosclerosis, bronchial asthma, lead-poisoning, etc., probably has some rational basis, therefore, on physiologic grounds. These substances are also as a rule non-irritant to the stomach.

4. The difference in frequency of iodism is probably due to the difference in the amount of available iodin present in the body at any one time. When large amounts of iodin are desired, as in cerebrospinal syphilis, avoiding the danger of iodism would be at the sacrifice of therapeutic efficiency.

5. The use of organic iodid preparations with toxic side actions due to the molecule or its splitting products, should of course be discouraged. The products of iodin with the higher fats and fatty acids are generally free from toxic actions. [R. M. G.]

Bulletin of The Johns Hopkins Hospital.

November, 1912.

1. *Crowe, S. J. *An Aid for the Diagnosis of Conditions Associated with an Obstruction to the Outflow of Blood from the Brain; with Special Reference to Sinus Thrombosis of Otitic Origin.*
2. Mosiman, R. E., and Whipple, G. H. *Chloroform Poisoning. Resistance of the Pigeon, Frog and Terrapin to Late Chloroform Poisoning.*
3. *Major, R. H. *Clinical and Bacteriological Studies on Endocarditis Lenta.*
4. *Davis, J. S., and Deming, C. D. *The Effect of Scarlet Red on Defects in the Mucous Membrane of the Stomach. An Experimental Study.*
5. Hazlehurst, F. *Subluxation of the Major Cornua of the Hyoid Bone (Dysphagia Valsolviana).*

1. As a result of a careful and interesting study Crowe has found that while in no normal person seen by him does compression of one jugular vein cause evident stasis easily seen in the retinal vessels, in all normal individuals there is undue dilatation of the vessels when simultaneous pressure is made on both sides of the neck. Sinus thrombosis following middle ear disease is a common cause of obstruction, more or less complete, to the outflow of blood into the internal jugular vein on the same side; it naturally follows that in such cases there will be unmistakable evidence of stasis as a result of compression, with the finger, on the internal jugular on the opposite side. He offers this as a sign of such obstruction, and hopes it will prove of value in diagnosis.

3. Major believes that endocarditis caused by S. viridans has a sufficiently distinctive picture to deserve recognition as a separate clinical entity. This type is of the subacute infective variety also called endocarditis lenta, and the S. viridans has been isolated from these cases, of which he gives the details of five. The onset is insidious, consisting chiefly of

gradually increasing lassitude and shortness of breath. Secondary anemia is well marked as well as a considerable leucocytosis. Emboli are common. The cultivation of the organism is not easy, and has led to much difference of opinion. The methods and results here obtained are described in detail. The organism is very similar to that of the micrococcus rheumaticus of Poynton and Paine. The article is of distinct interest.

4. Davis and Deming have carried out an elaborate series of experiments on the effect of ingestion of scarlet red on the mucous membrane of the stomach and on gastric ulcers. It seemed to have a more pronounced effect than olive oil on such ulcers, as well as being entirely non-toxic. They believe it worthy of a thorough clinical trial in gastric ulcer cases. [J. B. H.]

THE LANCET.

NOVEMBER 16, 1912.

1. *NIETNER. *The Modern Combat Against Tuberculosis Among Children.*
2. RUSSELL, W. *Motor Speech Paralysis Due to Cerebral Angiospasm.*
3. WEST, S. *On the Respiratory Neuroses.*
4. EVE, F. *Remarks on the Treatment of Sarcoma of the Long Bones.*
5. WALKER, C. G., AND WHITTINGHAM, H. E. *Results of Complete Removal by Operation of Transplanted Mouse Cancer.*
6. STEPHENSON, S. *On the Duty of the Practitioner in Cases of Ophthalmia Neonatorum.*

1. Nietner describes what he considers the essentials in the campaign against tuberculosis in children. He tells how Germany first began with cure and is now turning to prevention; even the simple skin tuberculin test gives us accurate knowledge as to the presence of infection in children. He is of the opinion that tuberculosis is a true children's disease, acquired in childhood, and must be prevented, treated, and healed during childhood. He regards milk as an unimportant factor in infection. In diagnosis, it is the suspected cases which are most important; frank, open cases are rare. X-ray and tuberculin tests are valuable adjuncts to clinical signs and symptoms. Among preventive measures he speaks of the great practical difficulty in safeguarding the child by removing it from parents or other sources of disease. He describes the efforts in this direction made in Germany, Sweden and Denmark. He urges a pure milk supply and describes health exhibits as used in Germany. He mentions the prophylactic measures to be taught mother and child. In school age he urges the examination of every child before admission, segregation of sick children, removal and pensioning of tuberculous teachers, special pensions for suspected children, adequate ventilation, and investigation of homes. He believes the school medical force should be increased, and that the school doctor should give his whole time to the work. He urges school dental clinics. Teachers must co-operate with doctors and school nurses. Instruction as to hygiene and the prevention of tuberculosis must be compulsory in public schools. As to cure, he believes that seaside sanatoria for children should be increased in number, and the stay of the individual child in these institutions should be longer than is now customary. He speaks of hebotherapy and the use of tuberculin. The article is of great practical value. [J. B. H.]

THE PRACTITIONER.

NOVEMBER, 1912.

1. DUCKWORTH, D. *Clinical Notes on Cirrhosis of the Liver.*
2. HASTINGS, G. S. *Indications for the Mastoid Operation.*
3. BADGEROW, G. W. *The Nose, Throat and Ear in Relation to General Medicine.*
4. *PYBUS, F. C. *Some Common Varieties of Tonsils and Their Recognition.*
5. *MILLER, C. *Points in Pulmonary Fibrosis in Children.*
6. MELLAND, C. H. *Some Recent Cases of Severe Anemia.*
7. KERR, J. R. *The Suturing of Tendons.*
8. JEX-BLAKE, A. J. *Review of Recent Literature on Diseases of the Lungs.*
9. LEA, C. E. *Recent Work on Heart Block.*
10. CONNOLLY, D. I. *The Inunction Treatment of Measles.*
11. GORDON, A. K. *The Significance of Abdominal Pain in Enteric Fever.*
12. SARKAR, G. B. *Clinical Observations on the Hypertonic Saline Treatment of Cholera with Special Reference to the Pathology, Prevention and Treatment of Choleraic Uremia.*
13. TIBBETTS, T. M. *The Etiology of Lead Poisoning as Illustrated by Two Recent Outbreaks.*
14. ROPER, A. C. *A Case with Comments: Biliary Pulmonary Fistula.*
15. ROBINSON, G. C. F. *A Case with Comments: Ruptured Sarcoma of Right Kidney Simulating Appendicular Abscess.*
16. READER, N. *Random Notes on General Practice.*

4. Pybus describes the various kinds of tonsils, their recognition and significance and the various ways of removing them. Among other varieties he describes the embedded tonsil, projecting and flat tonsils. In 90 % of all cases more tonsil is hidden than is visible.

3. In a short article Miller describes the condition he terms pulmonary fibrosis in children, the result of the response of connective tissue to the processes of inflammation, bronchopneumonia being the commonest cause of this condition. The smaller bronchioles become widened and are surrounded by much peribronchitic fibrous tissue. Rickets is a predisposing factor and whooping-cough a frequent antecedent. Symptoms are a chronic cough with frequent attacks of bronchitis, shortness of breath and "not thriving." General appearance is that of a mouth-breather. (This condition doubtless corresponds to what we term "bronchiectasis" in this country.—J. B. H.)

[J. B. H.]

Obituary.

CHARLES THORNDIKE PARKER, M. D.

DR. CHARLES THORNDIKE PARKER was born in Boston, January 2, 1858, and died on August 31, 1912, at Hamilton, Massachusetts.

He was the son of Richard Tucker Parker and Martha Sylvester (Thorndike) Parker. His early education was obtained at several of the primary schools in Boston and later at the preparatory school in Southborough. In 1878 he accompanied his parents to Paris, France, where he remained until the Franco-Prussian war. During the war he resided with his family in England and his education was continued under the supervision of a private tutor. Returning to Paris his home studies were continued until 1872, when he and his brother went to Stuttgart where he became a member of a German professor's family. Later he went to Berlin, where he continued his education under a well-known tutor named Metzdorf. He returned to this country in April, 1875, with a general education and a knowledge of the French and German languages.

Having developed a strong taste for the sea, he finally decided to ship in the old clipper *Midnight* bound for Yokohama. Making another voyage to Australia later, he came to Boston as mate of an English bark. In 1878 he bought a ranch in Texas where he lived for some time and was at one time Assistant U. S. Marshal.

After many interesting experiences, he returned to New York, and, in order to take up the calling of medicine for which he had for some time experienced a strong inclination, he entered the College of Physicians and Surgeons and graduated from that institution in 1887. On June 1, 1887, he entered St. Luke's Hospital in the Surgeon's Division as interne and finished his services eighteen months later. He then went to Europe and studied in Germany and Vienna returning in 1889 or 1890. He was then appointed Assistant Surgeon to the Out-door Patient Department, House of Relief of the New York Hospital, (Chamber Street Hospital) and served as Assistant to Doctor Lewis Stimson there until May 6, 1897. He then became in 1896 Attending Surgeon in the J. Hood Wright Memorial Hospital and served there until 1904. After his return from Europe in 1890, he was assistant to Dr. Charles T. MacBurney in all of his private operations for several years.

He entered upon his surgical career at a time when the pioneers of surgery such as Sands, Hall, Sabine, Bull, MacBurney and others, were laying the foundation for modern surgery in that city. He was with Dr. Sands when he performed his first successful operation for appendicitis. So that it will be seen that he was intimately associated with all that was active and best in surgery.

He was said to be an unusually good assistant at operations, skilful and observing, and he was capable of great exertions. Those with whom he was associated professionally regarded him as a brilliant and successful surgeon. He had a strong mechanical trend of mind and possessed great manual skill, and so doubtless played his part as a younger man in many of the modern improvements of surgery. He operated with rapidity and ease and with great success. His studies were continued from time to time in Europe under Czerny at Heidelberg and under Allbrecht in Vienna.

He was a member of the New York Surgical Society and of the Hospital Graduates' Club, and served at one time as Assistant in Surgery at the College of Physicians and Surgeons. After many vicissitudes Dr. Parker was now well established in a successful career but a long illness followed by an impairment of eyesight obliged him to retire from practice in 1903.

In 1900 he married Susan DeForest Day and since his retirement he travelled, making his home finally in Hamilton, Massachusetts. His last trip abroad covered a period of about two and a half years, during which time he suffered from a severe illness contracted in the south of Europe, which seriously impaired his strength. Returning in May, 1912, he seemed to have rallied, but a severe cold following unusual exertions led to bronchitis and later a general peritonitis, superinduced by suppuration about the gall bladder. His death came quite suddenly after a period of apparent restoration to health.

Such is the brief record of the career of a man of much versatility. He was of a strong and sympathetic nature, seeking to find a natural outlet in the activities of the world, and discovering at last that his true vocation was that which brought him so close in a responsive and helpful attitude to his fellowmen. The many qualities which he possessed in a marked degree seemed eminently to fit him for the rôle of surgeon. His mechanical dexterity, his energetic temperament, his sympathetic character, all fitted him for such a vocation, and had he not been deprived by ill health of some of the bodily functions indispensable to the surgeon, he could have rounded out a long and successful career.

In later years he was known to many intimate friends as a genial and charming companion and was always the life of the circle in which he was thrown. His sudden taking off was a rude shock to them and he reckoned among his mourners not only the grateful patients of his former profession in life but a host of friends who gathered from many quarters to pay their last tribute.

Miscellany.

A LETTER OF ROBERT BURNS.

Robert Burns, like other human beings, was subject to various ills and accidents of the flesh, and, like other human beings, apparently loved to dwell upon them in letters to his friends. Often his physical misfortunes were the fault of his own indiscretion, but sometimes they seem not to have been so. Under date of Dec. 12, 1789, he wrote as follows from Edinburgh, where he was visiting after the failure of his farm at Ellisland:—

"I am here under the care of a surgeon, with a bruised limb extended on a cushion; and the tints of my mind vying with the livid horror of a mid-night thunder-storm.

"A drunken coachman was the cause of the first, and incomparably the lightest evil; misfortune, bodily constitution, hell, and myself have formed a 'quadruple alliance' to guarantee the other. I got my fall on Saturday, and am getting slowly better."

After near a century and a quarter his complaint sounds as genuine, and his distress of mind seems as vivid as they must have been on the day when he wrote.

SOCIETY NOTICES.

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on December 17, 1912, at the Harvard Medical School, in the Amphitheatre of Building D, at 8.15 p. m. The following papers will be presented: Drs. Harvey Cushing and L. H. Weed: "Concerning Hypophyseal Glycosuria." (20 minutes.) Dr. F. B. Mallory: "The Infectious Lesions of Blood Vessels." With lantern slide demonstration. (20 minutes.) Through the courtesy of Dr. W. S. Bigelow, there will be a demonstration of photomicrographic subjects. For prompt publication, abstracts of these communications should be ready at the close of the meeting.

CLEAVELAND FLOYD, *Secretary.*

BOSTON MEDICAL LIBRARY in conjunction with the SUFFOLK DISTRICT MEDICAL SOCIETY. Medical Section. A meeting will be held Wednesday, Dec. 18, at 8.15 at the Boston Medical Library. Communication: Dr David L. Edsall, "Intestinal Decomposition and Its Management with Comments on the Rôle of the Habitual Use of Purgatives. Dr. Henry F. Hewes will open the discussion. Refreshments after the meeting.

GEORGE C. SHATTUCK, *Secretary.*
205 Beacon Street.

RECENT DEATHS.

DR. ELY BRACKETT, who died recently at Washington, D. C., was born in 1846.

DR. JOHN E. BRUERE, a retired physician, died at his home in New York on Nov. 22, at the age of seventy-six years. He was graduated from Washington University, St. Louis, and served as surgeon in the Union Army during the Civil War. He then practised in St. Charles, Mo.; coming to New York to reside after his retirement.

DR. ALVIN MATTHEW CUSHING, who died on Dec. 1 at Springfield, Mass., was born in Burke, Vt., on Sept. 28, 1829. After receiving his preliminary education at Newbury Academy, he studied medicine at Dartmouth, at the Woodstock (Vt.) Medical School, and at the Hahnemann Medical College, Philadelphia, graduating from the last institution. After practising his profession for brief periods at Bradford, Vt., Lansingburg, N. Y., and Melrose, Mass., he settled in 1865 at Lynn, Mass., where he continued in practise until 1880. He then came to Boston for a short time, and finally went to Springfield, where he spent the remainder of his life. He was a member of the staff of the Wesson Memorial Hospital, Springfield, and of various local and national homeopathic medical societies. He is survived by his two sons.

DR. MARKAR G. DADIRRIAN, of New York, died at his country residence at Riverview Manor on Nov. 24. He was born, of Armenian parentage, at Caesarea, Turkey, in 1839, and before coming to America, in 1868, he preached the Christian religion in various parts of Turkey as a missionary. He was graduated from the medical department of New York University in 1871; after which he returned to Turkey and practised medicine in Constantinople until 1884, when he was obliged to leave on account of political reasons. He then came back to New York, and from this time on devoted himself largely to the manufacture and sale of a preparation of fermented milk, for which purpose he had made special studies during his residence in the East. Dr. Dadirrian had been for many years a member of the Medical Society of the County of New York.

DR. JOHN D. MCGILL, a prominent physician and surgeon of Jersey City, N. J., died from Bright's disease on Nov. 28, at the age of sixty-five years. He was the son of Professor Alexander T. McGill of Princeton Theological Seminary, and brother of the late Alexander T. McGill, Jr., Chancellor of the State of New Jersey. Dr. McGill was graduated from the medical department of the University of Pennsylvania in 1870, and had passed all his professional life in Jersey City, here he was surgeon to St. Francis Hospital and to the Pennsylvania Railroad. For a number of years he was president of the Hudson County National Bank, and at one time he served as president of both the Board of Police Commissioners and the Board of Health of Jersey City.

DR. JAMES WOODS MCLANE, of New York, emeritus professor of obstetrics in the College of Physicians and Surgeons, the medical department of Columbia University, and who was for a number of years president of this school, died on Nov. 25. He was born in New York City on Aug. 19, 1839, and after taking the preparatory course at Phillips Academy, was graduated from Yale in 1861. He had received the degree of M.D. from the College of Physicians and Surgeons, New York, in 1864, and from 1867 to 1872 was professor of materia medica and therapeutics in the College. From 1872 to 1898 he was professor of obstetrics, and in the course of his professional career was attending physician to the New York, St. Luke's, Roosevelt, the Sloane Maternity, and the Nursery and Child's Hospitals. He was also president and trustee of the Roosevelt Hospital, and at the time of his death was consulting physician to the Northern Dispensary and to the Sloane Maternity and Nursery and Child's Hospitals.

DR. JOHN R. MERRILL, of Paterson, N. J., who died recently at Pasadena, Cal., was born in 1862. After graduating in medicine from New York University, he practised his profession until this fall in Paterson. He is survived by his widow and by two sons.

DR. ALICE BUNKER STOCKHAM, who died recently in Alhambra, near Los Angeles, Cal., was born at Cardington, Ohio, in 1833. After graduating from Olivet College, she studied at the Eclectic Medical School of Cincinnati. She practised her profession for a number of years in Chicago.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, Nov. 30, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	8	4
Chicago	—	—	Waltham	6	2
Philadelphia	—	—	Brookline	6	—
St. Louis	—	—	Chicopee	10	5
Baltimore	—	—	Gloucester	1	—
Cleveland	—	—	Medford	5	—
Buffalo	—	—	North Adams	7	3
Pittsburgh	—	—	Northampton	9	—
Cincinnati	—	—	Beverly	4	1
Milwaukee	—	—	Revere	4	—
Washington	—	—	Leominster	3	—
Providence	—	—	Attleboro	6	—
Boston	214	49	Westfield	6	1
Worcester	37	2	Peabody	6	1
Fall River	36	16	Melrose	2	—
Lowell	24	7	Woburn	3	1
Cambridge	28	6	Newburyport	4	—
New Bedford	32	11	Gardner	4	2
Lynn	21	3	Marlboro	4	0
Springfield	21	3	Clinton	4	2
Lawrence	—	—	Milford	—	—
Somerville	18	5	Adams	3	1
Holyoke	18	4	Framingham	—	—
Brockton	10	—	Weymouth	—	—
Malden	—	—	Watertown	5	1
Haverhill	8	1	Southbridge	3	—
Salem	10	3	Plymouth	1	—
Newton	7	2	Webster	3	2
Pitchburg	15	4	Methuen	—	—
Taunton	7	3	Wakefield	3	—
Everett	9	1	Arlington	—	—
Quincy	—	—	Greenfield	11	—
Chelsea	11	1	Winthrop	5	—

Address.

SCHOLARSHIP IN MEDICINE.

BY F. C. SHATTUCK, M.D., BOSTON.

Jackson Professor of Clinical Medicine, Emeritus, Harvard Medical School.

We meet today to testify to our respect for scholarship, to honor those who excel in it, to rejoice in this new evidence of the growth of University solidarity.

Some of us, sometimes, are tempted to think that scholarship is at a discount nowadays. King David must have had indigestion at times, perhaps hyperacidity, and then become pessimistic, as, for instance, when he classed all men as liars. So also his son, Solomon the Wise, when he says that wisdom crieth in the streets, allowing us to infer that no man regardeth her. Wisdom is too wise to cry in the streets. Does she not, nevertheless, always win recognition, late, if not immediate, but still win it? The voice of true scholarship is not a street voice; it never becomes raucous, though its influence, sooner or later, reaches the streets as surely as the sun rises. The word "scholarship" has a broader significance than it had in the Middle Ages, when it was bounded, in the main, by Latin, Greek and Theology. Scholarship broke its bonds in the days of the Renaissance. Does not its essence lie in thorough intellectual training, whether this leads to a practical application or not? Is there any warrant for the scorn implied in the term "bread and butter studies"? Is not the range of scholarship ever widening? This gathering, and its occasion, seems to me one of the many evidences that such is the case. Is it not probable that the Lord really does delight in the strength of a man's legs? There seem to be those, in these athletic days, who think that His chief and constant delight lies therein. Is it not reasonable to believe that the Lord delights in all and every honest effort of man to make the most of himself? The Battle of Armageddon, of which we have heard so much these past six months, is on all the time; and in every man the forces of good and evil fight for the mastery as long as he lives.

Scholarship implies healthy growth. Its value does not lie in its recognition. And yet it is well for us to recognize it. Recognition is but fair to those who achieve scholarship, of which the main-spring lies within the man, though the efficiency of the spring can be enhanced by external as well as internal stimuli. To recognize and honor the scholarship of others is surely a stimulus to us, and is thus twice blessed.

My earlier statement that this meeting marks a growth of the University principle at Harvard may bear some explanation. Harvard College has become Harvard University within forty years; but there are still today some loose threads in the University fabric. The physical separation of the Medical School, necessitated by the all-essential part which large hospitals, practically only possible and adapted to the purpose in notable centres of population, entails disadvantages alike to students and teachers. The student, perhaps even more than the teacher, may fail to realize that he is a member of the university rather than of a school. Indeed, how can he help it as long as the degree of Doctor of Medicine carries with it no voice in the election of Overseers? The man who gets his A.B. with a minimum of work—a minimum both in quantity and quality—need survive only five years (he does not need to live) to enter into the full privileges of sonship. So also, a man, who having taken an A.B. elsewhere, after one year's residence and work wins also the Harvard A.B. But the medical student, not a holder of the Harvard A.B., after four years' of serious work, followed usually by a year or more in a hospital, is turned adrift without the annual reminder carried by the franchise that he is really part of a great and beneficient institution, worthy of his loyalty and devotion. This is not just, therefore not wise, and will, I have faith to believe, be remedied in time. Let us all bear it in mind and do what we can to right the wrong as occasion presents itself. The participation of the Medical School in the John Harvard Scholarships, which were originally confined to under-graduates—members of the College—seems to me a sign of progress in University growth. It binds more closely together the Medical School and College and asserts that scholarship has a part in medical study as in every other branch of intellectual endeavor.

I do not remember before having had the privilege of speaking to the whole body of medical students, and it may never be offered to me again. I therefore avail myself of the chance to say to you collectively what I have said several times to classes individually, especially shortly before graduation. It seems to me, that every man who has had the opportunity to benefit by a college or university education should feel that he has thereby been put under bonds, as it were. He has, perforce, been an object of charity, and should never forget the fact. The actual cost to any college of an under-graduate student is by no means met by his tuition fees, which are, essentially, the same for poor and rich alike. This charity is rendered possible by the generosity, self-denial, public spirit, sentiment of those who have gone before us. The poor man needs it; the rich man cannot escape it. Modern medical education is the most expensive of University, perhaps of any large scale, education. If the under-graduate costs the college twice as much as he pays, the medical student costs probably five times as much, a portion of hospital expense being fairly chargeable to his needs. No large body of teachers is required for a law school, and one laboratory—

* Read on the occasion of the award of John Harvard Fellowships at the Harvard Medical School, Nov. 26, 1912.

the library, to wit—suffices. How different the conditions in a medical school! Much, therefore, is given to us physicians and it is reasonable that much should be required. If, like a sponge we absorb, like a sponge we should give forth, squeezing ourselves rather than waiting for events, which may never come, to do the squeezing for us. How can we pay our debt? It is within the power of each and all. Let us strive to live worthily, to do honest work for an honest wage where a wage belongs; but never forgetting that oftentimes the work which is best worth the doing, most profitable to us as well as to the world, carries with it no money wage. If we stumble, as most of us; perhaps fall, as many of us, do, let us not be discouraged but rather be stimulated to renewed effort. The persistent exercise of the will forms habits and develops character, enlarges reflex action, constantly freeing the higher centers for new work by throwing down to the lower activities, which, at first, only the higher could direct.

It is thus in constant effort to make the most of himself as man, citizen, member of his calling, that everyone can cancel his debt to the past. If it happens that we have, or acquire, a superfluity of this world's goods, how can we do so much good, with so little danger of harm, as by promoting the health of mankind? Again, sooner or later, the orbit of every human being approaches medicine, and we physicians have the chance to urge the claims of medical education and research upon those who have the means to aid it. In so doing we are offering a privilege rather than asking a favor.

Ask Henry Higginson, whom all will agree to be a competent witness, to tell us whether it is a privilege to give; whether his life has been enriched by the purgation of his pocketbook. I am disappointed that he is not with us this afternoon, but we have other witnesses. Ask Robert Bacon. Ask Dr. Warren whether he regrets having given himself all these years.

John Harvard Scholars, we greet you: we congratulate you and are proud of you. May this honor be but the forerunner of others and greater yet to come!

Within the next few days the London County Council will issue the report of the Medical Officer (Education) for 1911. The report is memorable chiefly from the opening sentences, in which Dr. James Kerr writes: "With this report the series for which I have been responsible during the past ten years is concluded. An attempt has been made to lay the foundations of school hygiene, as a study of natural interest and value, on the basis of problems worked out on scientific lines by the staff of the department." Dr. Kerr's work, briefly and modestly outlined in these few words, has been of national importance.—*British Medical Journal.*

Original Articles.

CHRONIC ALVEOLAR OSTEOMYELITIS (PYORRHEA ALVEOLARIS): ITS CAUSES AND TREATMENT WITH VACCINES.*

WITH A BACTERIOLOGICAL STUDY AND REPORT OF ONE HUNDRED FIFTEEN CASES.

BY LEON S. MEDALIA, M.D., BOSTON.

Late Instructor in Pathology and Bacteriology, Tufts College Medical and Dental Schools; Pathologist and Visiting Physician for Vaccine Therapy, Mount Sinai Hospital, Boston.

INTRODUCTION.

DURING my investigations of the opsonic index and the use of vaccines in the treatment of diseases due to bacterial infections I was approached (1907) to find out if anything could be done with this new method of treatment for pyorrhea. I have since had under my personal observation 115 cases, besides several other cases where I have acted as consultant. The cases here reported are all private patients, most of them sent to me by their respective dentists or physicians, while others applied for treatment of other diseases or for relief of other symptoms.

I wish to say right here that this disease, owing to its sequelae, is a great deal more important to the medical man than it is usually thought to be, as has been already emphasized by Hunter,[23] and others. Its being overlooked is responsible for a great many mistakes in diagnosis and treatment.

The laboratory work in connection with this study was carried out in the beginning at the Pathological Laboratory of Tufts Medical and Dental Schools, and continued since 1910 in my private laboratory.

This work was carried out with the following objects in view:—

1. To help clear up, if possible, the etiology of this disease by means of opsonic index, bacterial cultivations and specific therapy.
2. To establish the value of the vaccine method of treatment in this disease.
3. To establish the relation of cause and effect of the bacteria isolated from the pus by means of animal inoculation.

ETIOLOGY.

The understanding of the etiology of this disease depends upon a thorough knowledge of the true anatomical relation that the tissues surrounding the tooth bear to its socket, and what the alveolar process is.

Most all authorities and text-books on dental pathology refer to the tissue between the root of the tooth and the alveolar bone as the "periosteum, periodontal or peridental *membrane.*" According to Malassez,[1] on the

* Read at the Sixteenth Annual Meeting of The National Dental Association held at Washington, D. C., September, 1912.

other hand, the socket is nothing more than an enlarged medullary space of the maxilla, and instead of being lined by a supposedly thin plate of compact bony substance as Talbot[2] would have it, it is simply made up of the thinned out edges of the maxillary bones and their trabeculae or bony off-shoots, as seen on microscopic specimens. Also, instead of an elastic "peridental membrane," which is supposed to act as a cushion for the teeth, we really have an alveolar-dental ligament, a circular ligament, which keeps the tooth suspended in the alveolar cavity.

From the above short sketch of the anatomy of these parts it is very easy to understand the morbid changes that take place in this disease. According to Znamensky,[3] whose microscopic studies of the pathological specimens are considered best, the disease begins with an inflammatory process of the gum margin at the gingival space; it destroys the epithelial tissue and gradually involves the bones, which later become necrotic. New bone formation (osteoid tissue) takes place and results in a partial involucrum (a partial encapsulation). It is the involvement of the bony socket which is considered by most all the observers to be the characteristic feature of the disease.

Now, since the chief characteristic feature is the involvement of the alveolar bone and the tooth socket, the latter being nothing more than an enlarged medullary space of the maxillary bones, the only term it seems to me that we can properly apply to such a disease is *Chronic Alveolar Osteomyelitis*. This term, as you can see, is truly descriptive of the disease; it immediately suggests to one its morbid anatomy, its causes and modes of its progressiveness, and, above all, its proper treatment; while the other terms, "Riggs Disease," pyorrhea or periodontal disease do not describe the affection, and are therefore misleading.

Having made the normal and morbid anatomy of these parts clear the etiological factors of "chronic alveolar osteomyelitis" become apparent. They are local and general.

The *local* causes are: (1) mechanical, and (2) infectious.

The mechanical causes are by far the more important ones in starting the disease, but less so in keeping it up. It is the local infectious causes, on the other hand, that are most important in keeping up the disease.

The local mechanical causes are the same that are responsible for ordinary gingivitis and the most frequent of them are calculi or tartar deposits. Tartar as a cause of alveolar osteomyelitis was recognized by Ambrose Parey[4] (1550) and other early writers centuries ago. It has been recently emphasized by Fletcher[5] at the last meeting of the American Medical Association. In a previous communication[6] I called attention to the necessity for an albuminous or organic nucleus for the formation of calculi. The organic nucleus may be some food-remains in the gingival space together with some epithelial cells and bacteria. The organic matter if allowed to remain any length of time will ferment. The products of the fermentation will cause the precipitation of salts from the saliva or other secretion and form a calculus in the same way as calculi form in other parts of the body, in the gall-bladder, for instance, where typhoid bacilli have been found to act as an organic nucleus.

The *local infectious causes* comprise the bacteria, principally those capable of pus-production. The important ones are the pneumococcus in chain or diplo forms, staphylococcus aureus, streptococcus, and M. catarrhalis. These bacteria are always responsible for keeping up the disease. (A careful review of this phase of the subject as found in the literature as well as my own findings will be described later.)

I wish to call attention in this connection to the careless use of infected instruments as a possible cause of alveolar osteomyelitis. The same instrument used in scaling or cleaning an affected tooth, if used without first being sterilized, in treating other unaffected teeth in the same patient at the same sitting might spread the disease to the healthy teeth.*

The *general* or *systemic* causes are more in the nature of predisposing causes (lowered resistance), as a rule, rather than exciting causes. As a general rule, however, the systemic disturbances met with accompanying this disease are, in my opinion, secondary to the local trouble. The systemic importance of this disease, or rather its consequences, I will take up later.

BRIEF REVIEW OF THE LITERATURE.

I shall limit myself to the discussion of that part of the literature which deals only with the relation of bacteria to this disease. The important bacteriological investigators on this subject are Galippe,[7] who isolated 2 organisms from pyorrheal pus, one of which he described as a double-bubble. He succeeded in causing suppuration by inoculating this organism under the skin and in the joints of guinea-pigs and rabbits. His attempts to produce pyorrhea by inoculations in the gums of rabbits were not conclusive.

W. D. Miller[8] isolated 20 different organisms from 12 cases of human pyorrhea. Among them he found staphylococcus aureus twice, staphylococcus albus once, and streptococcus once. The other 16 were not identified by him. He therefore concludes that "Pyorrhea is not caused by a specific bacterium which occurs in every case, but various bacteria may participate in it." His attempts to produce pyorrhea in healthy dogs artificially were unsuccessful. He did succeed,

* One of the best methods for sterilizing instruments during the progress of an operation is to dip them in a jar of alcohol and then burn off the alcohol. This can readily be done by bringing the alcohol-saturated instruments in contact with the flame of an alcohol lamp.

however, in producing inflammation, and in one case a little suppuration, but inside of a week the lesions were completely healed. (He recommends experiments to be carried out on old, emaciated or sick dogs.)

Personally I have tried the artificial production of chronic alveolar osteomyelitis in 2 dogs. The cultures used for the inoculations were those isolated from 2 patients. One was a streptococcus and the other a pneumococcus in chains. The only result I obtained from the gum inoculations was an acute inflammation which subsided within a week. I repeated the inoculation 3 times with similar result each time, *i.e.* the gums were healed up at the end of one week.

I believe the negative results to be due, first, to the natural resistance of the dogs, both of them being in a very healthy condition, and second, to the lack of sufficient injury done to the alveolar process at the time of inoculation—sufficient to produce an osteomyelitis. I must confess that I was not aware at the time I did the experiments that pyorrhea, so-called, is in reality a chronic alveolar osteomyelitis. The negative results of the other investigators cited are probably due to the same reasons. In my future experiments I shall know better.

Kirk's[9] finding of a pure culture of diplococcus pneumonae in a few cases of freshly opened pericemental abscesses is of importance because of the minimal chances of contamination under such circumstances. Black,[10] von Arkovy[11] and others found bacteria in pyorrheal pus but they failed to identify or properly describe them.

Simms[12] recorded the following bacteria in 10 cases of pyorrhea which he studied: staphylococcus aureus, 2; staphylococcus albus, 1; streptococcus pyogenes longus, 1; M. catarrhalis(?), 10; streptococcus brevis, spirilla and fusiform bacilli occurred in every case.

All the investigators thus far cited approached the bacteriological study of the disease merely from the standpoint of establishing the etiological relation of bacteria to pyorrhea. Goadby[13] (1905) was the first to study the relation of bacteria to pyorrhea both from the standpoint of etiology as well as treatment, making use of Wright's bacterial vaccines in this disease. According to him,[14] the streptococcus pyogenes, M. catarrhalis and staphylococcus aureus and albus are the most frequent organisms met with in this disease. Apparently he has left out of consideration the possibility of pneumococcus occurring in chain forms and considered all the organisms occurring in chains as streptococci.

The confusing of the streptococcus with the pneumococcus in chains is met with in the literature and in a great number of text-books to which I have already called attention in a previous[6] communication. It has also been called attention to by Ricketts[15] and others.

In a recent article Goadby[16] reports 70 cases of early pyorrhea treated by vaccines; 45 of these he reports as cured, 13 relieved, 11 disappeared and 1 died (from an intercurrent disease). He therefore concludes that "the prognosis of early cases are 60% cures."

Jones and Humphreys[17] reported 5 cases treated by autogenous vaccines with good results. The organisms found by them in all of the cases they described as a streptococcus, occurring often as a diplococcus in short chains or chains of diplococci. The organisms described by these authors correspond exactly to the one I found in most of my cases, but which I designated as a pneumococcus in chains.

Eyre and Payne[18] (1909) reported the bacteriological findings in 33 cases of pyorrhea as follows:

Staphylococcus aureus, 2 cases; M. catarrhalis, 9 cases; M. catarrhalis and streptococcus pyogenes longus, 11 cases; streptococcus pyogenes longus, 7 cases; streptococcus lanceolatus pneumonae, 4 cases. They treated with vaccine 26 of the above 33 cases with the following results: 21 cured and remained cured from 9 to 15 months; 4 improved and 1 died. They were all followed up with vaccine treatment as well as local and general treatment.

Beebe[19] reported 17 cases of pyorrhea treated with good results by vaccines, 6 of the 17 cases showed a pure growth of pneumococcus, both in chains and diplo forms, while the other 11 showed the same pneumococcus mixed with staphylo aureus.

The foregoing brief review of the literature indicates that observers in all parts of the world who have had any experience at all in the treatment of this disease by means of vaccine are unanimous in the good results obtained with this method of treatment. It is to be remembered that the observers, be they bacteriologists or medical men, have always handled their cases together with the dental surgeons and their reports are the conclusions reached by both the medical man as well as the dentist.

PERSONAL WORK.

The study of the 115 cases of chronic alveolar osteomyelitis or pyorrhea alveolaris which makes up the subject matter of this communication will be best described under three groups, divided according to their clinical appearance and chronicity into 1, *incipient;* 2, *moderately advanced;* and 3, *far advanced.* Before taking up these groups under their separate headings it will be well to describe the method of procedure in handling the patients as a whole—the method of obtaining the cultures and also describe in a general way the findings, treatment and results.

METHOD OF PROCEDURE.

Each patient was given a thorough physical examination when he first applied for treatment, also a careful urine analysis and examination of

feces, both chemical and bacteriological. Specimens of blood were obtained for the opsonic index. The blood was also tested by Talquist Hem. scale and smears of blood stained and examined microscopically. No further examination of the blood was made when the above were found negative. Cultures from the gums, nose and throat were obtained both for bacteriological examination and the preparation of vaccine.*

Culture media used were glucose agar (made of fresh meat), beef blood serum, plain and glucose bouillon and Schottmüller's blood agar (prepared by mixing 2 c.c. of fresh human blood obtained from a vein and 5 c.c. of plain agar). This latter medium was used for plating purposes in order to establish the hemolytic property of a streptococcus when found. The glucose agar was found to be the best medium for the growing of the bacteria for the preparation of autogenous vaccines.

BACTERIOLOGICAL FINDINGS.

a. Direct Microscopic Examination of Smears.

The smears of pus were stained by my Methylene blue stain,[20] also by Gram's method, and at times by Wright's modification of Leishman's blood stain. As the microscopic findings of the smears were practically the same in all cases, one description of the bacteria found will be given here which will be applicable to all. The direct smears of pus when stained and examined microscopically showed, aside from a great many pus cells, a variety of bacteria, both bacilli and cocci, as well as spirochetae of all sizes and shapes. A few red blood corpuscles were also found, especially if bleeding occurred in collecting the pus.

The bacilli were very numerous but rarely those identified as pathogens. They also rarely grew upon the artificial culture media known. A great many of the cocci, on the other hand, were those found associated with pus or disease production in other parts of the body, and grew readily on artificial culture media. Aside from a number of micrococci, varying in size and arrangement which could not be identified, there were almost always present large masses or groups of staphylococci, diplococci resembling pneumococci, Tetrads, a rare chain of diplococci, and at times a few short chains of streptococci. Masses of biscuit-shaped diplococci resembling M. catarrhalis were also met with at times.

Gram stain helped to identify the various organisms; the bacilli only rarely stained by Gram, and a great many of the cocci were also found Gram negative, while the chains of diplococci (pneumococci) and the streptococci were almost always found Gram positive.

b. Cultural Findings.

During the early part of the work it was at once apparent, both from the opsonic index and cultural findings as well as from results obtained by the administration of autogenous vaccine that the bacteria to reckon with in this disease belong to the coccal group rather than the bacillary types. Among the cocci found, those that are known to be responsible for the production of pus in other parts of the body, the pyogenic or pus organisms, are the ones and only ones that are of any importance in this infection. Specifically they are: pneumococci in chains or diplo forms, staphylococci, streptococci, and M. catarrhalis—either alone or in combinations. The most frequent of these and the one that appeared in practically all the cultures (107 times out of 112) was the pneumococcus in chains or the so-called "streptococcus lanceolatus pneumonae." The others were less frequent and occurred rather in combination with this organism than alone.

Chronic alveolar osteomyelitis is, therefore, not due to a specific micro-organism present in all cases in the same way as tuberculosis is *always* caused by the tubercle bacillus, but is due, according to my own findings and those of other investigators, to a mixed infection of different bacteria, and may vary according to the pathogenic organisms most prevalent in the oral cavity of the individual.

OPSONIC INDEX AND THE IDENTIFICATION OF THE RESPONSIBLE MICRO-ORGANISMS.

A. E. Wright's discovery of the opsonic index and his development of bacterial vaccines for purposes of treatment, gave us two new methods by means of which we could determine upon the causal relation of a given bacterium to a given disease.

In the beginning of this work I made it a point to test the opsonic index to as many stock or laboratory pathogenic bacteria as were found expedient, and in some cases also to the bacteria isolated from the patient's own pus. This, together with clinical results obtained from the use of autogenous vaccines were the methods by means of which the identification of the responsible organism and its relation to the disease were established. (A detailed description of the opsonic method of treatment, also the technic as modified by myself, will be found in a previous communication.[21])

* *Technic.*—Cultures from the *gums* were obtained in the following manner: The lips or buccal parts were kept away from the affected tooth by means of a sterile tongue depressor by the patient or an assistant. The gums round the affected tooth were carefully wiped off with sterile cotton. The pus was then pressed out by means of a sterile swab. This pus in turn was collected with a fresh swab which was labeled No. 1. Further pressure would cause a second and third drop of pus to ooze out, which were collected on a second and third swab respectively. The first drop of pus was smeared upon cover slips for the direct microscopic examinations, while the second and third drops of pus were used for cultural purposes. In cases where no visible pus was present (incipient and some moderately advanced cases) the gum that showed the most sponginess, inflammation or recession was used. A sterile heavy platinum wire was used to obtain material for cultural purposes, alongside of the swabs, from the gingival space or from a pocket if there were any present. Several culture tubes were inoculated at the same time and the results compared. In a word, all efforts were made in each individual case to obtain cultures from the pus or affected places, as free from contaminating material or contaminating organisms as is possible under the strictest bacteriological methods.

In this series a number of cases were also followed up in the beginning with the opsonic index as a guide to treatment. Later, however, following a great deal of experience with this method of treatment, the clinical reaction of the patient at the point of the injection and the amelioration of the disease were considered sufficient guides to treatment; also, cultural findings alone were later thought sufficient to establish the causal relation of the organism found to the alveolar infection. This established the diagnosis without having had to resort to the opsonic index.

FECES EXAMINATION.

The examination of the feces was 1, bacteriological, and 2, chemical.*

The chemical analysis revealed the presence of excessive amounts of undigested meat-remains, starch-remains, or excess of fat. Also by means of the Strassburger fermentation tube it was possible to detect whether the particular intestinal fermentation of which the patient complained was a carbohydrate fermentation or a meat putrefaction. This chemical examination was found of utmost value for purposes of deciding upon the proper diet in the individual case.

TREATMENT.

All the cases were treated by 1, immunotherapy or vaccine therapy; 2, general systemic treatment; and 3, local treatment by dentist.

1. Immuno-Therapy (Vaccine Therapy).

I call this method of treatment immunotherapy because it consists of an active immunization of the patient against the bacterium with which he is infected. This treatment is carried out by means of bacterial vaccines, and is also known as the opsonic treatment.

The technic for obtaining cultures for purposes of making the vaccines is the same as that described for bacteriological examination. The vaccine, which consists of killed bacterial cultures, was prepared and standardized according to Wright's method as described in detail in the communication already referred to.[21]

All the cases had autogenous vaccines made up which were used in combination with the corresponding stock vaccine, *i.e.* vaccines made of the same bacteria obtained from other similar cases. The combination of stock with autogenous vaccine was found to be more efficacious than either alone. (The combined vaccines were used in one injection.) The dose varied from 50 to 100 million of pneumo. vaccine and from 50 to 300 million of staphylococcus aureus vaccine, except where the latter was used at the same time for a staphylococcus skin infection (acne, furunculosis) when its dose was increased. The dose of the strepto. vaccine varied from 15 to 75 million. The interval varied from 5 days in the beginning to 8 and 14 days or longer later, according to the local amelioration of the condition. The vaccines were injected in the upper arm, deep-subcutaneously or intramuscularly. A marked local reaction was met with only rarely; a general reaction was never present.

2. Systemic Treatment.

Systemic treatment was principally attention to diet, the development of a water-drinking habit (2 quarts daily), proper personal hygiene and attention to proper elimination. Tonics were found to be needed only rarely. Emphasis was put chiefly upon the diet and personal hygiene, and the results, in my opinion, justified the procedure.

The gastro-intestinal symptoms as a rule yielded to the appropriate diet, while the intestinal flatulence and fermentation responded best by the addition to the diet of lactic acid milk prepared at home with the bacillus Acidi Lactici[22] (Medalia). (Any other pure culture of a good lactic acid bacillus may be used.)

3. Local Treatment.

The local treatment was left entirely in the hands of the dentist, who removed calculi and necrotic bone when present, kept the teeth free from tartar, established free drainage of pockets and instructed the patient in the home care of the teeth. The dentist found it necessary to delay local treatment in many cases where the teeth were too loose and gums too tender for instrumentation. Such patients were followed up by vaccine treatment first until the teeth were rendered tighter and the gums less inflamed and less tender. These cases helped to establish the value of the vaccine treatment independent of local treatment.

I wish to say right here that local surgical treatment by the dentist is absolutely necessary in conjunction with vaccine treatment for the final successful outcome of the case. It is not to be expected or vaccine treatment to supplant, but rather to supplement, surgical treatment.

Similarly we cannot expect local treatment alone to do it all, because, as long as the resistance of the blood of the patient remains low to that particular infecting agent, just so long will the disease persist.

In connection with local treatment it may be

* *Technic.*—In order to obtain the specimen the patient was directed to sterilize a wide-mouthed jar (lightning or another preserve jar) by boiling it for one-half hour. The boiled empty jar was covered up while still hot and kept covered until used. The movement was passed directly into it. This gave a sterile specimen which could be used for bacteriological purposes as well as chemical.

The bacteriological examination of the stool consisted of direct smear examination, stained by Methylene blue and Gram's method. Cultures were made upon glucose agar (stab and surface cultures), beef blood serum and sterile milk. The milk media were used to detect the presence of the bacillus aerogenous capsulates. The cultures were made use of for purposes of determining the presence in the stool of the same organism that was found in the pus of the alveolar sockets, also for the preparation of vaccines to be used in combination with the gum vaccine in those cases that were suffering of intestinal disturbances.

of interest to quote from a letter of Dr. H. S. Draper (dentist) of Boston. He says in part:—

"A number of years ago it seemed to me that 'pyorrhea' was only a *symptom* of a constitutional disorder and that local treatment alone would be of no avail or only palliative, consequently I have not urged local treatment unless the patient would also try systemic remedies, which most of them did not seem inclined to do. I attached so little faith to the purely local treatment that I told patients so and sent them to specialists in local treatment, who did have faith in it.

"The cases usually resulted in a return to me to have artificial substitutes for the teeth which they finally lost, or in being turned over by the local treatment specialist to some one who practiced vaccine therapy. The only cases which I feel I have helped by local treatment were cases where the teeth had been neglected and tartar allowed to accumulate, the inflammatory condition disappearing after thorough scaling and treatment. In the worst cases there oftentimes is no deposit present and in these cases I have no faith in treatment locally only."

The above is the opinion on local treatment alone as expressed by a man for whose observation and conservative judgment I have a great deal of respect.

Mild antiseptics were also advised, most of them for purposes of calling attention to the cleaning of the teeth and tartar deposits.

A favorite prescription was the following:

℞

Liquor Iodi Comp. (U. S. P.)	Oz. ss.
Glycerine	Oz. ss.
Aque Distil ad.	Oz. ii.

S. Apply on gums mornings or at bed-time with a cotton pellet wound round a tooth-pick or with a camel's hair brush.

This iodine preparation was advised to be applied at the junction of tooth and gums. The patient was told that it would not stain the enamel but would stain any foreign matter or tartar. Hence as soon as there was much staining the patient knew that he had to go to his dentist to have it removed. This worked well for the purpose of attracting attention to the teeth and gums. Its antiseptic property is, of course, very mild, especially under the circumstances where it is washed off by the saliva as soon as it is applied.

RESULTS.

The results of the treatment have been classified as "cured," "improved," and "no improvement." It might be well to state here what I mean by the term "cured." I considered a case cured when the local condition of the gums became healthy as to color and firmness, when no pus could be squeezed out of the sockets, loose teeth tightened up and when no inflammatory condition was found present; also when symptoms such as bad metallic taste in the mouth, soreness and bleeding of gums and tenderness during mastication disappeared; and finally when any systemic symptoms present, such as rheumatism, gastro-intestinal disturbances and neuralgic pains, also disappeared, or were relieved, and the patient considered himself as "feeling well." when these changes for the better in the patient's condition lasted for several months without a recurrence, I thought I had a right to consider such a case as "cured."

(To be continued.)

THE INSANITY OF THE FEEBLE-MINDED.

BY WILLIAM N. BULLARD, M.D., BOSTON.

It has long been apparent to close observers of the mentally defective classes that a considerable number of feeble-minded persons existed who showed mental symptoms of a character which might be considered as evidence of insanity. It is the case in Massachusetts that the State Institutions for practical purposes separate certain clinical classes of the feeble-minded, considering some as proper inmates for the special institutions for the feeble-minded, while others are designated as "insane" and sent to the State Hospitals. The diagnosis between these two classes and the determination as to which form of institution a given patient should be sent has been sometimes uncertain. Considerable difficulty sometimes exists in eliciting such symptoms as would seem to justify the commitment of these feeble-minded patients as insane.

It appears that at the present time the principle of expediency obtains to a considerable extent—and this perchance wisely. Such patients as cannot be cared for safely and without excessive vigilance or without considerable restraint are transferred from those institutions whose purpose it is to care for the less violent and troublesome to those where a proper provision for the more violent and troublesome patients has been made. The clinical line of demarcation cannot always be drawn except after prolonged observation between those feeble-minded with mental peculiarities who can be best cared for in the institutions for the feeble-minded and those who should be committed to the State Hospital for the Insane. The mental condition in these two classes is the same and it is merely a question of the degree of development and of the violence of the symptoms into which class the special patient should be put.

A large proportion of the medium and higher grade feeble-minded—the imbeciles and morons—are subject to peculiar mental conditions which affect their thoughts and conduct. Feeble-mindedness is in many, probably really in all cases, not simply a diminution, lack or absence of faculties, intellectual and moral, but involves a certain mental perversion as well. When this

mental perversion reaches a certain point the patient may be judged insane.

Feeble-minded persons may, like ordinary persons, be attacked by various forms of insanity. The insanity in these cases is an additional affection supervening upon a defective brain, a complication but not a direct result of the original brain conditions. Thus a feeble-minded person may have dementia praecox or paranoia but the paranoia and the dementia praecox are essentially separate mental conditions which are superimposed on the feeble-mindedness.

These accidentally supervening forms of insanity show merely an addition of one affection to a pre-existing defective condition and will not be considered here.

There is, however, a form of mental disease which we may be justified at present as classing as an insanity which forms an integral part of the mental condition in many of the feeble-minded. It makes itself evident through certain definite signs and symptoms, physical and mental, and is itself strongly suggestive, if not pathognomonic, of feeble-mindedness. In other words it is doubtful whether this peculiar symptom-complex exists except in the feeble-minded and usually the congenitally feeble-minded.

The *symptomatology* of the so-called insanity of the feeble-minded is very distinctive. It is easily recognized clinically, provided the patient is under observation for a considerable period in a suitable institution. It usually cannot be recognized at one examination at the home of the patient or at the physician's office unless the patient be in the excited or violent condition at the moment. The clinical syndrome is chiefly an increase or exaggeration of a syndrome commonly occurring in the feeble-minded who are not regarded as insane. One of its chief characteristics is the periodicity of the symptoms. The patient may remain in a natural quiet condition for days, weeks and months and the condition may then without apparent cause change gradually or abruptly to one of excitement and violence.

The principal and the characteristic symptoms of this group of patients are spontaneous outbursts of temper and of violence. There are in this affection apparently definite changes in the mental condition at different periods. At one time the patient is comparatively calm, cool, not remarkably excitable or irritable. This patient seems like an ordinary average quiet feeble-minded person who except for some mental incapacity does not in general differ from the ordinary person of their age, sex and station in life. At irregular periods, however, a change takes place in the mental atmosphere of the patient and such patients have outbursts of temper and become violent, almost maniacal. In this condition they scream, strike, kick, bite, destroy clothes and furniture, break windows and require forcible restraint. They are obscene and profane. After a certain time, usually a day or more, the more violent symptoms cease and they return more or less to their normal condition only to be liable to a similar attack at some future time. These outbursts usually appear superficially to be sudden and abrupt. In certain cases and probably in almost all there are prodrometa. For a day or two before the attack, the patient, who usually has been cheerful and fairly contented, able to do some work and often doing it well, becomes uneasy, has a feeling of mental discomfort and unrest, is sullen, disagreeable and finally quarrelsome. The immediate onset of the outburst is usually a quarrel with some other patient, often provoked by the subject, or some contrariety or dispute with an attendant. Sometimes the first definite signal is the refusal to obey directions, to go to bed at the proper time or some other routine order. The immediate cause of the outbreak is usually something insignificant in comparison with the resulting actions. The outbreaks or their sequelae may continue for days or even weeks and in some patients the intervals are not free from symptoms. Even when not violent they may be very excitable and irritable. Many of these patients both steal and lie at times. Many of them also are profane and obscene even in the intervals.

Some are said to have hallucinations of hearing and sight, but these seem exceptional and as a rule these symptoms are not prominent.

During the outbursts, these patients may be dangerous both to themselves and others.

It is a well-marked fact in these cases, and one deserving of special emphasis, that under certain circumstances they remain quiet and for their mental condition essentially normal for long periods and that under other circumstances, if dissatisfied with their condition or if they believe themselves to be in any way ill-treated or imposed upon, the more violent symptoms are always ready to break forth.

The mental stability of these patients is extremely weak and it not only gives way at times apparently spontaneously, but it is liable to yield under small causes, real or imaginary.

It is this condition which essentially constitutes the so-called insanity of the feeble-minded. It is to be clearly distinguished from those cases in which one of the ordinary recognized forms of insanity supervenes upon the original condition in a feeble-minded person.

In the former case the so-called insanity is a part of the essential condition: in the latter the insanity appears to be an additional affection or complication.

According to the *British Medical Journal*, a bill is shortly to be introduced into the Reichstag to provide against the baneful effects of faulty infants' feeding-bottles. The bill contains paragraphs according to which bottles with tubes either of rubber or glass may not be manufactured, or sold, or offered for sale, or imported, or exported.

ALIMENTARY ABERRATIONS; THE ROENTGEN RAYS AS A FACTOR IN THEIR DIAGNOSIS.

BY PERCY BROWN, M.D., BOSTON.

(*Concluded from page* 831.)

There are here presented the records of a series of examinations in an individual in whom there is a moderate degree of static aberration in the shape and position of the stomach in which residue persists. Consequently, there is exemplified, in this case, the likelihood of residue in gastrectatic cases and the importance of its appreciation in such cases.

A young woman, who is the subject of such symptoms as lassitude, headache, debility, anemia, nervousness, etc., has been sent to a near-by sanitarium for what had been generally called obstinate nervous debility. After observation here for a few weeks, the conclusion was arrived at that she was suffering from the effects of a metabolic deficiency. Upon this, she was referred to the writer and the following exposures were made:

The stomach is moderately low and, while peristalsis is weak, the degree of ectasy cannot be called great. (Fig. 1.)

A second exposure, made on hour later, shows the slightly increasing tubular form of the median part of the stomach but evidence of but a slight amount of food ejected. (Fig. 2.)

An exposure, made two hours *post cartum*, shows a beginning evidence of ectasy involving the pars pylorica and pars media. Peristalsis at the preantral region, however, is not lost. (Fig. 3.)

The next exposure, made three hours after the meal, shows less food within the stomach but with active peristalsis at the pylorus only. (Fig. 4.)

The next exposure, five hours after the meal, shows the picture before you; residue still existing, but not, at this time, to an unreasonable degree. (Fig. 5.)

The next plate, six hours *post cartum*, shows the stomach definitely not yet emptied. (Fig. 6.)

Little change has taken place at the next exposure, nine hours after the meal. Definite residue still exists although the extreme anterior portion of the discharge-column is well within the large intestine. (Fig. 7.)

At last, twenty-four hours after the meal was given, the stomach is empty. This case illustrates what degree of stasis may exist where there is relatively so moderate ectasia. The clinical history and examination here offered no suspicion as to the presence of any pyloric narrowing, either ulcerative or malignant. (Fig. 8.)

After a consideration of the aberrations in shape and position, as well as in motility and general activity of the gastric viscus, our attention naturally turns towards the faithful "keeper of the gate" so frequently beset on all sides—the pylorus. As normal peristaltic activity increases as this portal is approached, in the same direction does gastric pathology increase in gravity and, consequently, in importance. Therefore, we enter upon our diagnostic problems of the third degree, but we are withal to bear in mind many phases of those with which we have already had to deal, for it is seldom that one is not interwoven with another. For instance, hyperperistalsis so often may warn us of pyloric spasm from organic cause as well as of simple visceral hyperstimulation. The Roentgenological observation of the evacuation of the chyme will settle the question. Or, conversely, the persistence of residuum is often concomitant with gastric atony and ectasy, as has been shown; on the other hand, it may be a sign-post pointing directly to a stenotic pyloric path, as will be shown.

There is no condition more than those involving the gastric pylorus or the duodenum wherein the x-rays are to be considered no more than a factor in diagnosis, an appellation which the title of this communication endeavors to emphasize. Without knowledge of physical findings by other technical means, the Roentgenologist is disabled, if not helpless. There is a Roentgen laboratory in this country where a routine chemical examination of the visceral contents is made in stomach cases. It is not in any way intended to filch the thunder of the internist or the medical chemist, but it is believed, merely, that many cases of organic importance sometimes of necessity lack this added information.

From what we have seen already, it will be realized how important is the bearing of proven gastrectasis or gastroptosis upon the mooted clinical question of autointoxication. Even more important, however, promises to be that of the confirmation, by x-rays, of intrinsic organic disease of the alimentary tract. This advance has been stimulated by the work of Holzknecht of Vienna and he has been ably assisted by Haudek,[17] who has come upon an ingenious method of examining the stomach and colon simultaneously by x-rays, and by Jonas,[18] who has discovered the Roentgenological evidence of gastric antiperistalsis. Like all pioneers, Holzknecht has drawn some forceful conclusions, which, to the ultraconservative may contain the essence of radicalism were Holzknecht's position in the Roentgenologic field less stable. To rehearse his conclusions, already published, would be to deprive this communication of any claim to originality. Suffice it to say that Holzknecht arrives at a diagnostic decision by means of Roentgen rays in combination with certain indubitable evidence obtained by chemical examination and intelligent manual palpation in the following:

Carcinoma pylori.

Carcinoma without stenosis (inoperable or operable).

Simple gastric ulcer.

Old contracting ulcer either at the pylorus, in the pyloric portion or in the medial portion.

Carcinoma on the base of an old ulcer with or without stenosis.

Carcinoma of the cardiac portion, and

Ulcer duodeni.

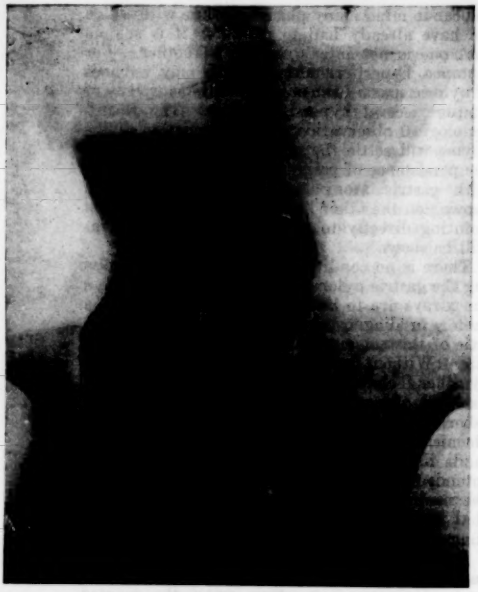


FIG. 1

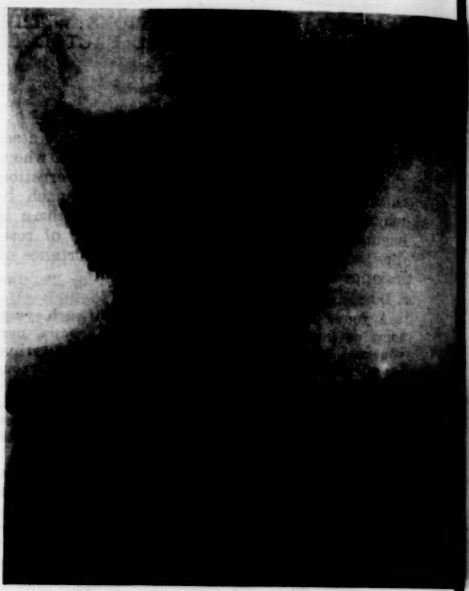


FIG. 2

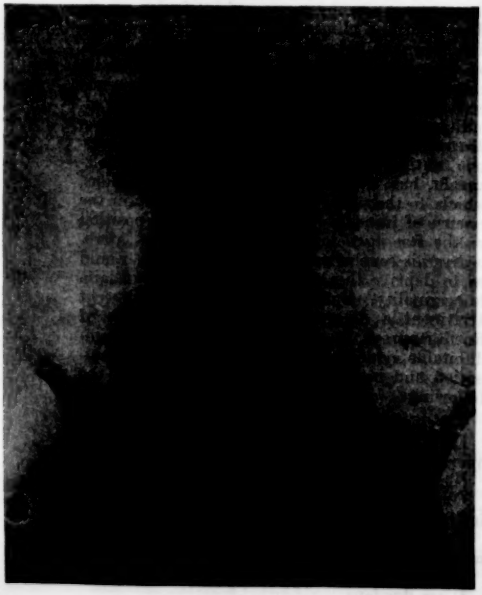


FIG. 3



FIG. 4

The use of manual palpation in such instances is not for obtaining objective evidence of visceral limitations which the x-ray examination itself obtains indubitably, but for localizing sensitive pressure-points through the patient's sensorium.

Anyone who has done much in alimentary Roentgen diagnosis will recognize the worth and stability of Holzknecht's contribution; he who has done but little, may require the further enlightenment which added experience will furnish.

It is the writer's set purpose to present only a few examples of the value of Roentgen examinations in such cases:

A young woman, a domestic, presents a history of many attacks of epigastric pain, of an increasing inability to digest and has, on two occasions, vomited a small quantity of blood, which she thinks may have been no more than gastric contents tinged with blood. She has been irregular in her habits of eating, and, through her recent inability to digest much food without painful symptoms, has lost considerable weight. On screen examination, she presents a large, but peristaltically active, stomach, from the pylorus of which, at a period of ten minutes after the meal, no food has escaped.

Three hours after the meal, the situation is as shown. Peristaltic activity has greatly diminished. The preantral portion is distended. The antral portion itself is contracted. There is a narrow isthmus through which the food has to pass.

At the next exposure, made at a six hour interval after the meal, the situation is clearly shown. In addition to the residue present, there is a considerable ptosis of the stomach which may, in itself, account for some of the residue. According to Holzknecht, however, it does not. The anterior discharge column is seen to occupy the transverse colon, the splenic aspect of which is, in itself, pushed down by the low position of the stomach.

Another exposure, made at nine hours, shows but little change, residue remaining. The head of the discharge column has made but little advance, which may be due to the aforementioned pressure on its splenic aspect by the low stomach.

In twenty-four hours the stomach is seen to be empty, or is again filled with food not bismuthized and, therefore, invisible, but its position is shown by the aberrant course of the transverse colon. The head of the discharge column occupies the sigmoid and rectum.

Diagnosis: Cicatrizing and stenosing ulcer at the antral portion of the stomach.

A lady, aged fifty-six, has also suffered much with epigastric pain; is greatly troubled with gastric and enteric flatus; has feelings as if a cord were drawn tightly around the subphrenic region; has lost a prodigious amount of flesh; is cachectic, and has had multiple attacks of vomiting in which the vomitus is somewhat unusual in color. On presenting herself at the laboratory, she readily eats a full bismuth meal and immediately after a screen examination, an exposure is made with the following result:

It is fortunate, as will be seen, that she so readily ate the full meal, for, even so, it only partially fills the enormous stomach which you see before you. By actual measurement of shadow, the length of this stomach from its capital to its caudal pole is 41 centimeters. Please, however, to note the fact that, in spite of the great amount of ectasis as seen here, there is a distinctly visible effort at peristalsis, the waves of which are marked by arrows. This immediately leads us to be on our diagnostic guard.

A second plate, made a few moments later, shows the effort of the peristaltic action at pressing the food into the preantral region. (Fig. 9.)

A third exposure, made almost four hours later, shows an amount of residue which would amply fill a stomach of normal size. Peristalsis still persistent; but there is but a suggestion of food beyond the pylorus. (Fig. 10.)

Six hours later, still much residue. Peristalsis strong. The indentation forming the sphincter antri is deep. The antrum itself is greatly distended and is filled by virtue of this distention, *except at its immediate prepyloric portion.* What prevents its distention here? (Fig. 11.)

The next slide shows the same stomach nine hours *post cartum.* Still an enormous residue. What, however, has escaped the pylorus has been carried along into the cecum, which is marked by the letter C; not enough, however, to anywhere near fill this portion of the large intestine. (Fig. 12.)

In twenty-four hours. Still no inconsiderable amount of residue. A sporadic amount is in the large intestine at the ascending colon.

This is the last of the series in this case, which was diagnosticated as carcinoma of the pylorus.

A young man presenting the picture of starvation has had for some years an increasing tendency to eructate a large portion of all swallowed food. There is a history of an old gastric ulcer. He presents himself for Roentgen examination and a bismuth mass is fed to him slowly. Soon after each swallow a gurgling sound is heard as of water running through the outlet of a sink. His diagnostic plate presents an area of constriction which lies *within the cardia* through which the food passes, but with difficulty. Upon operation, the mucosa of the gastric cardia was found to extensively cicatrized and thickened so as to allow the passage of food through but a narrow canal, as the slide portrays.

A man of about twenty-eight years complains of symptoms which, to his physician, closely simulate gastric crises, especially since there is a luetic history. Being unable to swallow a bismuth meal of any consistency, a thin butter-milk suspension was given him in lieu of this. An exposure was immediately made of the condition found. The entire preantral portion of the stomach is the seat of a stenosis which obtains in the distal direction until the pylorus is reached.

This is one of the most interesting of the so-called hour-glass types that it has been the fortune of the writer to see. Soon after this examination, the patient was operated, upon the strength of the findings as here shown. The surgeon, Dr. Jones, reports that he could pass his little finger through this stenotic canal and the feel of the gastric wall gave the impression of its being of a consistency similar to chamois skin. The stenotic portion was thereupon ex-



FIG. 5



FIG. 6



FIG. 7

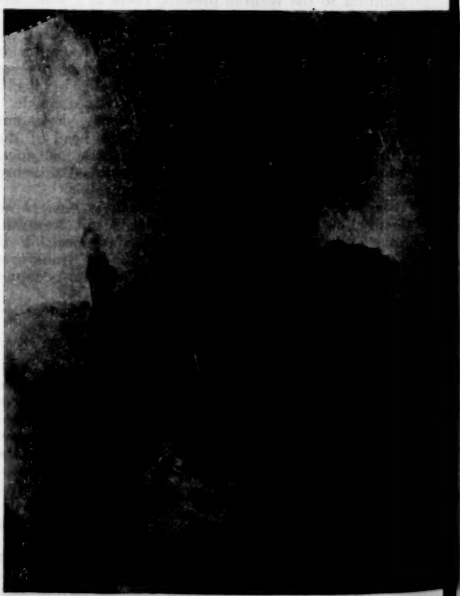


FIG. 8

cised and the patient is now relieved of his symptoms and is improved as to his nutrition.

A middle aged gentleman, well known in local public life, presents, briefly, a history of loss of flesh, of increased weakness, of much gastric pain of a griping nature and of vomiting. His stomach presents this picture. Its shape is distinctly that of a horn. The normal contour about the prepyloric region is lost and the peristalsis is violent. There is no chemical evidence of hydrochloric aid.

In six hours the residue remaining is distinctly effected by the perisistent peristalsis, the waves of which are marked by numbers.

Diagnosis: Carcinoma of the pylorus and prepylorus region. Proven at autopsy.

Once having escaped the pylorus, the physiologic disposition of the chyme is by no means a closed book to the Roentgenologist, as the anatomic arrangement of the small intestine might lead one to assume. The first segment of the duodenum is, of this division of the intestinal canal, the most likely to offer information with regard to its condition. This is apparently because the screen examination indicates that the duodenum acts as a temporary reservoir for the chyme. The bismuth-loaded gastric ejections are, with the greatest frequency, seen to be delayed at this point in the "caput duodeni," before passing onward with increased rapidity. Upon the recognition of the fact that the first portion of the duodenum, thus seen to act as a reservoir as does the stomach at its capital pole, Skinner applies the technic of gastric fluoroscopy to this portion of the intestinal canal. To this segment of the duodenum, Holzknecht gives a refinement of physiologic function by calling it the "Püfferraum," or "teasing-room." Beyond the duodenojejunal angle and, in fact, beyond the first portion of the duodenum, physiologic action is hard to follow by reason of the relatively great speed of the intestinal action and the anatomical disposition of the gut. The Roentgenology of the human small intestine, however, has proven the theory of its segmentation as set forth by Cannon, and this segmental activity can be today recorded in spite of the vaunted motility of this portion of the gut. Segmentation in the duodenum is almost constantly to be observed beyond the spade-shaped shadow of the first portion, in the shape of button-like masses which are lost among one another as activity increases in the second and remaining portion.

The speed of motion in the discharging column in the jejunum and ileum can be estimated by the promptitude, or otherwise, of the appearance of the food-mass at the ileo-cecal valve. This appearance will average, according to Hertz, four and three-eighths hours after the food has been taken. Our observations in non-pathological situations average slightly less than this, using, withal, a food-mass of the same chemical constituency as used by Hertz. The chemical nature of the test meal has a distinct bearing on the acid control of the pylorus. The promptitude with which the filling of the small intestine takes place from an unobstructed pylorus is really surprising and the fact has an immediate technical bearing in the Roentgen laboratory.

Immediately the ileocecal valve is passed the change which takes place in the action of the bismuthized chyme is nothing less than startling. The cecum and ascending colon will gradually fill, but, when apparently full to slight distention, will show, for a time, little inclination to pass the food onward. The stimulation to action caused by the presence of the food results in the production, among others, of *antiperistaltic contractions*. Intestinal antiperistalsis was suddenly come upon by Jacoby,[19] about five years before the discovery of Roentgen rays, and since has been localized in the proximal colon of the cat by Cannon in connection with his aforementioned investigations. The likelihood of the existence of physiological antiperistalsis in man has been the cause of endless discussion. It is hard to see, when the action of the chyme is observed well within the human proximal colon, how the presence of antiperistalsis can be doubted even if such actual waves were not seen. No other force, it is believed, could produce the appearances which are to be observed in the cecum as the food is crowded back and squeezed against the walls of the blind gut. Antiperistalsis may occur elsewhere in abnormal conditions, but, of itself, is never pathological. Rather, as Rieder says, it is the pathologic manifestation of an accentuated physiologic function.

The advancement of the chyme in the colon is brought about by (1) peristalsis by *haustral segmentation*, the evidences of which are so often seen and easily recorded by x-rays, and (2) by the *"great peristaltic movement"* (as opposed to segmentation) by means of which the food-mass is transferred, by a series of infrequent jerks or shifts, en masse from one portion of the colon to another, which Holzknecht's screen examinations have enabled him to observe, but which are extremely hard to see in any other way. Finally (3) the discharge column is advanced by *oscillating* or *pendulum movements*, of great and small types. The great oscillations may be better described as windings or writhings, produced, perhaps, by intrinsic intestinal movements in opposite directions towards a common centre. These, likewise, can be recorded upon plates by the influence of x-rays. The smaller oscillations are to be seen on the screen as influencing the shape of the food-mass impinging upon the haustral contractions and, therefore, indicating the character of their intrinsic movements.

A meagre description merely of the gastric and intestinal physiological activities, as thus to be observed, would be inexcusable even by a tolerant audience, were it not for the fact that a

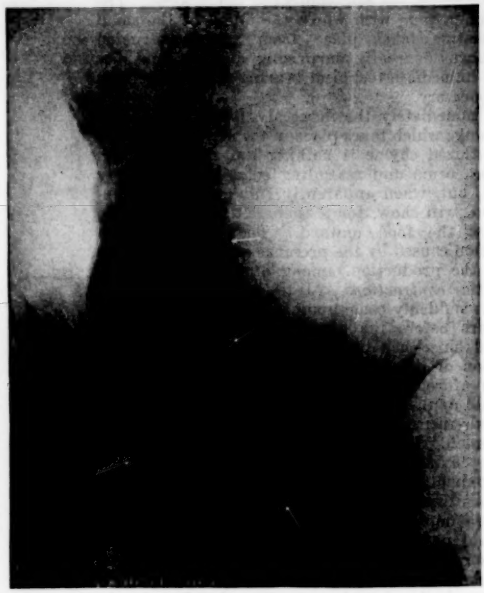


FIG. 9

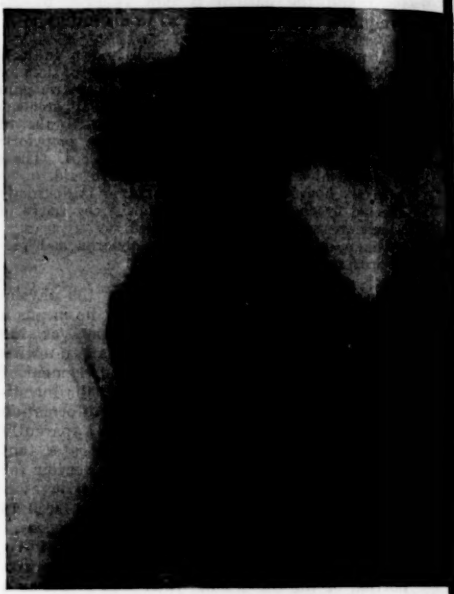


FIG. 10

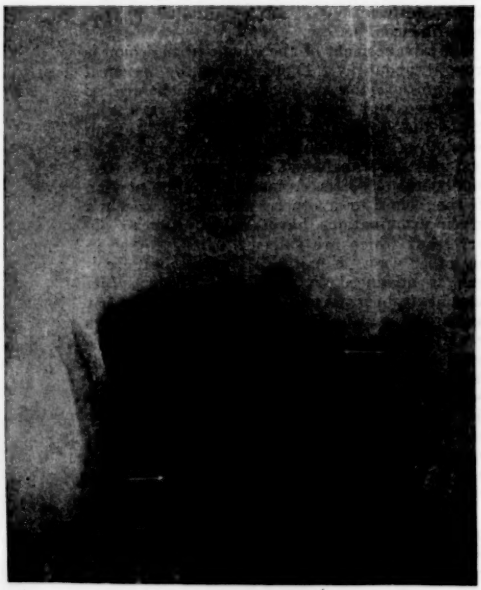


FIG. 11

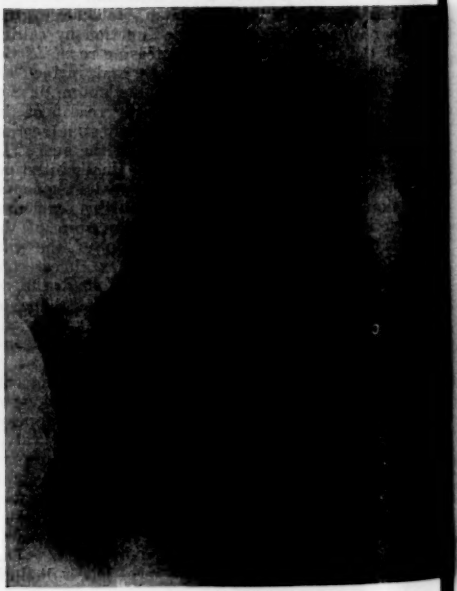


FIG. 12

mention of the normal is necessary to a proper mental conception of what may be considered as aberrations from it. Especially with respect to the intestinal canal is the dividing line between aberrations in structure or function and normality itself a most pliable one. Repeatedly has a certain section of the course of the large intestine been diagnosticated as the seat of a kink, pathologically induced, when, in reality, the exposure to x-rays was made at just the time when that portion of the gut was undergoing one of its oscillatory or writhing movements. Intestinal abnormality certainly exists in instances a-plenty without the necessity of adding to the number its innocent physiologic acts.

Finally, on account of the loose mesenteric attachments of both intestines, these organs are especially prone to untoward influences of a nature which tend to divert their courses and to thwart their functions in localized areas. We are today familiar with the ptoses and what-not which are to be enumerated under Glénard's classification. Evidences of these are thus demonstrated. We have also learned through the observations of Mr. Arbuthnot Lane,[20] with the assistance of Dr. Jordan, of the presence of aberrations in arrangement involving the distal portion of the ileum as it approaches Bauhin's *valve*. Disturbances such as these are oftentimes brought about by nature herself as a part of the general mischief she creates with her so-called intestinal adhesions. Naturally, therefore, we may many times look for such aberrations in the immediate vicinity of the appendix vermiformis.

Any suggestion of disease involving the intestinal canal and the likelihood of helpful investigation thereof, particularly where the abnormality is suspected to be of an intrinsic character, suggested one more Roentgenological step. This procedure involves the injection of the bismuth by rectum instead of its ingestion by the mouth. Examinations such as these wherein the bismuth is supported by some such mass as the *bolus alba* of the Germans have been extensively pursued by Haenisch[21] of Hamburg. Haenisch tells the writer that he is so impressed by the efficiency of this mode of test meal administration that he employs it in nearly all his intestinal cases. The method, however, certainly cannot be of prime value where the determination of intestinal aberration depends upon an observation of whatever of physiology it has to offer. Its chief value lies in the facilities it offers for fluoroscopic observation in situations which may be beyond the reach of the proctoscope or the sigmoidoscope.

Any mention of the Roentgen method as applied to the esophagus has been purposely left until now as advancement of technic has not been so rapid in this region as in other portions of the tract. The chief value of Roentgen examinations here, and it certainly is a dependable method of observation, is the determination of the situation in cases presenting symptoms of so-called cardiospasm. Esophageal diverticula, say nothing of organic stricture, are usually of ready Roentgenological application in the inverse order of their mention.

In recapitulation, it may be said that we have today, in the alimentary application of x-rays, as dependable a method of aiding our diagnostic knowledge as has been given us for many years. Nevertheless, the writer considers the mission of this paper as fulfilled to the utmost if he shall succeed in conveying the impression that, in this method, we have but a factor making for our diagnostic success in any given case. As we stated at the beginning, the practitioner of the future is in danger, through just such helpful agents as these, of becoming a clinical scientist instead of a scientific clinician. His primary mission is still entered upon at the bedside and at the bedside he has little else to aid him than had his predecessors of the earlier days—his five wits. Let him, therefore, use them, and then he shall be able to stretch forth his hand toward the laboratory, not beseechingly, as one who is helpless, but with the authority born of knowledge, as becomes a master.

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THE TREATMENT OF PULMONARY TUBERCULOSIS BY ARTIFICIAL PNEUMOTHORAX, ACCORDING TO THE METHOD OF FORLANINI.

WITH A REPORT OF TWENTY-ONE CASES.

BY GERARDO M. BALBONI, M.D., BOSTON.

(*Continued from page* 853.)

CASE 12. M. D., 31, single. February 9, 1912. Plumber. Lives in the North End, Boston. *Family History.* Negative. *Past History.* Gonorrhea and syphilis eight years ago. *Present Illness.* On March 5, 1910, was suddenly taken in the night with a brisk hemoptysis and lost about a pint of blood. A second hemorrhage occurred a week later, during which he lost about eight ounces of blood. In two weeks was better and went back to work, though he was troubled with a cough and increasing weakness. He worked for two months when he had to give up on account of a third hemorrhage. Since then he has spat up blood in small amounts at varying intervals. Cough is very irritating, preventing sleep, pains throughout the chest and night sweats. Raises considerable thick yellowish sputum tinged with blood. Is very much discouraged. *Physical Examination.* Well developed and fairly nourished. Shows loss of weight, sallow complexion, cheeks sunken and eyes cavernous. Teeth, mouth and tongue in good condition. *Right Lung.* Dullness, increased tactile fremitus throughout, but more marked in upper third. Bronchovesicular breathing and moist râles, especially at apex and middle lobe. Some râles heard throughout lung. *Left Lung.* Distinct dullness and moist râles at apex.

February 9. X-ray of chest by Dr. Walter J. Dodd. Showing an extensive advanced bilateral process more marked on the right.

February 10. 100 c.c. nitrogen gas introduced into right pleural cavity, going into the sixth intercostal space in midaxillary line. The introduction was made slowly and carefully at varying intervals, measuring the intrathoracic pressure. At end of operation there was slight dyspnea and slight cardiac displacement. Very little pain. The nitrogen gas went mostly anteriorly.

February 14. No discomfort since the first introduction of nitrogen gas. 800 c.c. nitrogen gas injected in the same space. Manometer reading showed a positive pressure of 5 cm. water. A feeling of tension in the chest and occasional sharp pain radiating to back. Tympany and absence of respiratory sounds and râles in front. Posteriorly respiratory sounds and râles heard distinctly in middle lobe. Scattered râles throughout back. Heart a little displaced to left but functioning normally. Feels well.

February 17. In front right chest respiratory sounds but no râles heard. In back loud respiratory sounds and râles heard; crepitant and moist râles especially in the middle and upper lobe. 800 c.c. nitrogen gas introduced in fifth interspace postaxillary line. Râles are still heard below the spine of scapula downward to middle lobe.

February 19. No troublesome cough. No night sweats, feels much stronger. 200 c.c. nitrogen gas injected.

February 23. Improvement continuous. Weight 138 pounds. 300 c.c. nitrogen gas injected. Crepitant and moist râles are still heard in the back. Blood in sputum soon after injection.

February 29. Has been able to take long walks without dyspnea. Has a hearty appetite. 500 c.c. nitrogen gas injected. A feeling of tension throughout chest and a little pain at sight of puncture; and emphysematous area near site of puncture, causing no discomfort. The râles in the back not obliterated. Anteriorly pneumothorax is complete.

March 25. Patient coughs during the day. Pneumothorax is complete except for a patch in the back where râles are distinctly heard. 100 c.c. nitrogen injected. X-ray, taken by Dr. Walter J. Dodd, shows the middle lobe to be adherent, thus preventing a complete compression.

March 30. Very little sputum in the morning. No pains whatever. Attempted to introduce nitrogen in the back below angle of scapula and after 50 c.c. had been introduced injection was stopped on acount of the pain.

Patient has come twice a week for examination and for replenishing the loss due to absorption He has continued to improve, looks a great deal better and feels that he is on the road to recovery.

May 27. The patient was in the office for about two and one-half hours this morning helping with other patients. He was the last one injected, 400 c.c. nitrogen gas being introduced at a high pressure, for the purpose of compressing the middle lobe. The manometer reading showed the pressure to be very high for it blew the water out of the manometer. The tension was relieved by allowing some of the gas to escape. The pressure was brought to 12 cm. water. Patient felt well but very full about the chest. Immediately after the site of the puncture had been strapped, he came down from the operating table and swooned. He soon revived and after reclining a short time on the couch felt better. He felt miserable for two days, complaining of pain in epigastrium and a feeling of fullness on taking a little food.

May 31. Feels well. X-ray taken by Dr. Holmes. The pneumothorax is almost complete except for a part of middle lobe in the back, which is adherent. There is tympany throughout the anterior portion of the right chest. No respiratory or abnormal sounds heard. Coin sound.

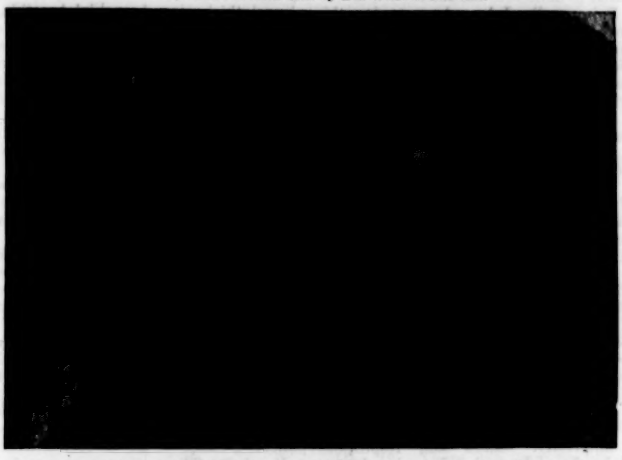
In right back, region of middle lobe, moist râles heard. This portion of the lung not yet collapsed. Several attempts made to enter pleural cavity here have failed.

June 3. Introduced 300 c.c. nitrogen gas into the pleural cavity, going into the fifth interspace just below angle of scapula behind. The pneumothorax needle passed through very thickened pleura. Patient stood the introduction well. The râles were not wholly obliterated.

June 7. "Feeling fine." Introduced 500 c.c. nitrogen gas into the fifth interspace in back. Well taken. At the end of the introduction manometer pressure registered 6 cm. water positive.

June 11. Patient was demonstrated to the Section on Tuberculosis of the Massachusetts Medical Society. Introduced 300 c.c. nitrogen gas, going into the sixth interspace anteriorly. The sputum

The X-ray work has been done by Dr. Walter J. Dodd.



Case XII. Extensive tuberculous process involving both lungs. More marked in right. Left base and apex less involved. Type of bilateral case that slowly but progressively improved under treatment.



Case XII. Partial pneumothorax of right side. Complete pneumothorax impossible at this time owing to adhesions. Thin black lines extending across the lung indicate edge of retracted lung held by adhesions. Extensive process in left lung. Heart pushed to left by pneumothorax. The nitrogen gas is mostly in front of chest and is at a high pressure.

has markedly decreased in amount; there is very little cough and the patient is happy.

June 14. Introduced 600 c.c. nitrogen gas into the sixth interspace below the angle of the scapula. A feeling of tightness about the chest. Heart action good, rate 72 throughout.

June 16. Noticed sputum streaked with little blood.

June 18. The condition of the left lung is very satisfactory, there are very few râles heard at apex. The respiratory sounds throughout are harsh and of an exaggerated character. The right chest anteriorly is tympanitic throughout, absolutely no respiratory sounds heard. In the back in an area corresponding to middle lobe there are crepitant râles heard. Introduced 800 c.c. nitrogen gas in

the sixth interspace below angle of scapula. This amount appeared to obliterate the râles.

June 22. Doing well. I have been urging this patient to move from the North End but he is not able on account of his financial condition. A friend of his is taking him down the harbor in a steamer every day from now on. The nitrogen gas is very rapidly absorbed in the back as is evident by the râles heard. Introduced 800 c.c. nitrogen gas into the fifth interspace below angle of scapula. Râles obliterated. At end of introduction the pressure was positive 6 cm. water.

June 26. Condition the same as on previous date. Introduced 1000 c.c. nitrogen gas into the sixth interspace below angle of scapula. The pleural space must certainly have increased in size. The nitrogen gas under pressure is more rapidly absorbed.

June 30. 500 c.c. nitrogen introduced into fifth interspace below angle of scapula.

July 3. Has been going down the harbor every day for a week. Is also going to sleep aboard for awhile. Introduced 600 c.c. nitrogen gas as before. Well tolerated.

July 7. Has gained 4 pounds since he has been going down the harbor. General condition very satisfactory. No respiratory sounds heard in the right chest anteriorly. Râles and respiratory sounds heard in the right back. Introduced 1500 c.c. nitrogen gas into the sixth interspace below angle of scapula. No pain, some tightness about chest. Heart action good. No râles heard in the right back. Lung tympanitic throughout, coin sound heard throughout. The lung is immobile.

REMARKS.

This is an advanced bilateral case, presenting the one great obstacle in the treatment—adhesions. Old adhesions cannot be broken and therefore the lung cannot wholly collapse. The condition of this patient at the start was bad. The treatment has certainly improved his general condition and if it is continued and the patient placed in proper hygienic surroundings, I think we can rightfully expect more marked improvement. I have finally been able to produce a complete pneumothorax of the right lung and will maintain it so by frequent injections. The nitrogen gas is very rapidly absorbed where the pleura is thickened and there are adhesions. If this state of things continues for the summer there is every reason to believe that the patient will ultimately recover sufficiently to become self-supporting.

CASE 13. A. Z., 23, female, married. February 24, 1912. *Family History.* Negative, *Past History.* Unhappy married life. Has one child six years old. *Present Illness.* For the last three years has had a cough which started after a pleurisy of the left side. For the last four months has been getting worse, gradually getting weaker, losing flesh and a gradual but progressive sore throat has developed, which causes considerable pain and trouble in swallowing. Cough is troublesome, raises sputum with considerable effort, has chills in the afternoon and a rising temperature with sweating. Appetite poor. Tires easily. Has not menstruated for four months. *Physical Examination.* Fairly developed and poorly nourished. Marked loss of flesh. Skin dry and hot. Teeth and mouth in good condition. *Laryngological Examination.* Tuberculous involvement of larynx. X-ray taken by Dr. Walter J. Dodd. *Left Lung.* Dullness, pleural thickening, bronchial breathing and coarse moist râles throughout. *Right Lung.* Cavity between second and third ribs. In upper third dullness, moist, coarse râles and amphoric breathing. An advanced case undertaken as *"ultima spes salutis"* on the insistence of the father and the patient.

March 1. Temperature 102°, pulse 120, respiration 24. 1000 c.c. nitrogen gas introduced into the fourth interspace in midaxillary line on the left. Patient stood introduction well, there being no untoward symptoms until night when the patient was restless on account of the pain at site of introduction. The nitrogen gas went mostly anteriorly, but apex beat was not displaced.

March 4. Patient feels fairly comfortable. Has raised considerable sputum much easier than before. 200 c.c. nitrogen gas injected—slight pain at site of introduction. The intrathoracic pressure was 8 cm.. at end of introduction. A feeling of fullness in the chest. Weak, but in fair condition, pulse rate 120. The muscles of the chest wall are very thin. During an attack of coughing some of the nitrogen gas escaped through puncture into the tissues, producing a subcutaneous emphysema of moderate extent. Deep pressure being exerted over puncture, escape of gas ceased.

March 7. The patient was seen in consultation by Dr. Samuel Robinson. 1500 c.c. nitrogen gas introduced without displacing the heart. At the end of the introduction, the patient was in good shape. Pneumothorax complete except for moist râles at left apex and above the spine of the scapula behind. Very little change in the right lung.

March 11. Patient has not been very well. The throat has become worse and patient cannot take proper nourishment. Cough is less and expectoration a little easier. Fever and sweating continues. 150 c.c. nitrogen gas introduced into sixth interspace below angle of scapula behind on the left. Very faint respiratory oscillation obtained, and considerable pain felt during the introduction. Intrathoracic pressure 12 cm. of water. Probably the gas went into a space bounded by adhesions.

March 15. The condition of patient is worse. She is able to swallow only with a great deal of pain. She is in a weakend condition. She has decided not to continue injections.

Patient died April 10th.

REMARKS.

An extremely unfavorable case, not only on account of the lung condition but also on account of the serious laryngeal complication which prevented the patient from taking a proper amount of nourishment. DaGradi has treated three cases of laryngeal tuberculosis secondary to the lung and reports good results in two cases. Ulcerative processes in the larynx may heal when infective sputum from the diseased lung ceases to pass over them.

CASE 14. V. L., 32, married. April 28, 1912. Farm laborer in Arlington, Mass. This is the only severe case of hemoptysis that I have treated with artificial pneumothorax, and it is very interesting and instructive. Family and past history negative. *Present Illness.* Sixteen days ago came home from work not feeling well and complaining of chilliness. For several days previous had a slight cough with clear sputum. He went to a physician's office that

evening on account of cough and the chilliness. That night, after going to bed, he coughed and spat up a basinful of blood. Cough persisted, and chilliness and fever with night sweats came on. The sputum continued bloody up to April 28, when I first saw him. On that day he had had a second hemorrhage. Patient looked haggard, cough was troublesome, and sputum bloody. Dyspnea and was apparently in great discomfort from pain in left chest. The cheeks were flushed and the eyes were sunken. Well developed and fairly nourished; chest well formed. Apex beat visible in nipple line. *Left Lung.* Dullness and bronchial breathing, increased fremitus in upper half of lung front and back; moist râles throughout but more marked in middle lobe. *Right Lung.* Squeaks only. Temperature 102°, pulse 120, respiration 36.

I introduced 1800 c.c. of nitrogen gas into left pleura, going into the fifth interspace in midaxillary line. The nitrogen was introduced slowly, employing 30 minutes in doing so, and meanwhile examining the condition of the heart. The patient stood the introduction of nitrogen gas well. An hour afterwards the patient was left fairly comfortable, but complained of a feeling of tension in the left chest and of inability to take a long breath. His pulse was 130, small but good. He passed an uncomfortable night on account of the pain at site of the injection and on account of the cough. The heart was markedly pushed to the right, there was tympany throughout the left chest, no râles and very faint breath sounds. Pneumothorax apparently complete.

April 29. Cough persists, expectoration still bloody, not uncomfortable, and breath sounds more audible but no râles. Temperature 101°, pulse 120, respiration 38.

April 30. Temperature 99°, pulse 102, respiration 32. Cough persistent and sputum still bloody. The pneumothorax was not complete for lung was partially mobile. Decided not to give a second injection of nitrogen gas.

May 1. Late in the night spat up a cup of blood. I was sent for. The patient was greatly worried on account of the blood he had raised. An examination of the left lung showed the lung was mobile, as was evident by the respiratory sounds throughout and the return of the râles, though on percussion there was tympany throughout left chest.

I introduced 1200 c.c. nitrogen gas, going into the fifth interspace midaxillary line, the introduction being made very slowly and the lung being frequently examined with the stethoscope. I stopped the nitrogen gas when the râles and respiratory sounds were obliterated. At the end of the introduction, the intrathoracic pressure was 10 c.c. of water; there was an almost complete dextrocardia. The pulse was 130, weak, irregular and of poor quality. The patient complained of a feeling of tension in the chest, pain and inability to take a long breath. In the course of half an hour the pulse became regular, rate 120, of good quality. In an hour and a half he was fairly comfortable, the pulse was good, and the cough was not troublesome.

May 2. "The best night I have had since I have been sick," were the patient's words the next morning. No night sweats, very little cough, sputum tinged with blood. Temperature 99°, pulse 118, respiration 36. There were scattered squeaks in right lung and breath sounds markedly increased.

May 3. Doing well. Temperature 99°, pulse 118, respiration 36. On stethoscopic examination the left lung is found slightly mobile as is evident by the slight respiratory sounds and the râles heard. I wished to keep the lung as completely immobilized as possible on account of the hemorrhages the patient had had, and feared a repetition if the lung became mobile. There were injected 200 c.c. of nitrogen in the same space as before. This obliterated the respiratory sounds and râles. The patient was left feeling comfortable. Pulse 120, respiration 36.

May 4. Temperature 99°, pulse 102, respiration 30. Feels better—some pain on coughing at site of injection, the sputum is still bloody but diminished in quantity. Complains of pain in epigastrium, the liver is found pushed down. Appetite increasing.

May 5, 6, 7. Condition continues good, coughs less, very little blood in sputum; no night sweats and temperature normal. There are squeaks heard in right lung.

May 9. Passed a fair night. Pain persists at site of injection. No more blood in sputum. Expectoration is loose and mucous in character. Stethoscopic examination shows pneumothorax to be of such a volume as to keep lung immobilized. There are râles and squeaks at base of the right lung, probably due to pressure of left pneumothorax on the right lung.

May 12. There has been no blood in sputum, cough is loose and the expectoration is frothy. There is still some dyspnea on exertion. Temperature 99°, pulse 108, respiration 36. Appetite increasing.

May 14. Temperature 98.5°, pulse 102, respiration 24. Breathing easier, and says he is able to take a long breath now without discomfort. Has been resting and sleeping well. The condition of left lung remains unchanged. The râles and squeaks of the right lung have cleared.

May 19. The patient was found up and taking a walk. Very little cough and sputum. Gaining in strength.

May 23. Came from Arlington to Boston to the office. Feels stronger. Had an x-ray taken by Dr. Walter J. Dodd, shows a complete pneumothorax of left lung. Repeated sputum examinations fail to find tubercle bacilli.

May 28. The patient is doing well, is gaining in strength and is out of doors every day.

REMARKS.

Dr. John B. Hawes, 2nd, in a recent publication, says, "A hemorrhage from the mouth in the absence of a definite source elsewhere, which can entirely and satisfactorily explain the bleeding, should be considered as positive evidence of pulmonary tuberculosis, even if the physical signs in the lung are of the slightest." In this case the signs in the left lung were marked. There was no doubt as to the diagnosis. The serious and menacing condition of the patient justified the energetic treatment and I believe it saved the patient's life. If at any time the patient's condition had become worse, on account of the heart displacement or the pressure on the other lung, it would have been an easy matter to relieve condition by the withdrawal of some of the gas from the chest. This case illustrates very well the efficiency of the treatment in hemoptysis. It must be remembered that this patient had been under medical treatment for 16 days previously and was progressively getting worse. There has been no replenishment of nitrogen gas since the third in-

jection. Altogether the patient has received 3200 c.c. nitrogen, the pneumothorax is complete, as shown by the physical examination and the x-ray taken May 23. The condition of non-compressed lung is good, the heart is still displaced to the right, but causing no untoward symptoms. There is very little coughing and a negligent quantity of sputum. The pneumothorax will be allowed to take care of itself and the patient kept under observation for a month at least before being allowed to go to work.

June 11, 1912. Shown to the Section on Tuberculosis of the Masachusetts Medical Society. The patient is feeling fine, has gained in weight, has no cough or sputum. Is going back to work. The pneumothorax is still complete and the heart is still displaced to the right.

CASE 15. Edward R., 45, married. May 20, 1912. Boiler worker, East Boston. Referred by Dr. Sissa. *Family History.* Negative. *Past History.* Malaria as a young man. Denies venereal disease. Married 20 years. Five children, all well. *Present Illness.* Last July not feeling well on account of cough and weakness, he went to a hospital for examination where he was told he had consumption. He was sent to a day camp where he stayed for two months without improving and later entered the hospital where he remained until March, when he left the hospital feeling worse. At present cough is very troublesome with a great deal of sputum, night sweats, slight chilly sensation and general weakness. Appetite is poor. Is unable to sleep on left side. *Physical Examination.* Well developed and fairly nourished, fair color, mouth and teeth good. Pupils equal and react. Knee-jerks normal. *Chest.* Well formed. *Left Lung.* Dullness from third rib in front upward and from the spine of scapula behind. Moist coarse râles throughout lung more marked from second rib in front to apex. Bronchovesicular breathing. *Right Lung.* Dullness at apex, bronchovesicular breathing, increased fremitus, fine crepitant râles at angle of scapula behind. X-ray examination shows an extensive bilateral process more marked on the left. Heart and blood vessels apparently normal. Nothing noted in abdomen. *Urine.* No sugar or albumen. Distressing cough throughout examination.

May 21. Introduced 500 c.c. nitrogen gas into left pleural cavity going into the fifth interspace in midaxillary line.

Absolutely no symptoms. There never appeared any untoward symptoms. At the fifth injection which was made in the sixth interspace below angle of scapula patient felt considerable pain which disappeared on the following day. The sixth, tenth and seventeenth injections also caused some pain.

REMARKS.

It has always been very difficult to maintain the pneumothorax complete even by frequent replenishing of nitrogen. Every advanced bilateral case of this series has shown this same difficulty.

After the fifth injection the patient was able to sleep on the left side, his appetite improved and he began to regain his weight. The cough and expectoration have markedly diminished, he feels stronger and is able to do some work about the house. For the last three Sundays he has gone fishing in the harbor and I have encouraged him to do so on other days.

There is a marked improvement in all his symptoms and he is a happier man now than when he began treatment.

The pain that he has experienced on three different occasions are undoubtedly due to pleural adhesions which are not uncommon in these advanced cases.

CASE 16. V. B., 43, married. May 21, 1912. Fruit dealer. Lives in East Boston. Referred by Dr. Sissa. *Family History.* Negative. *Past History.* Six years ago had pleuropneumonia and was ill one year. He went to Italy and came back six months later completely recovered and weighing 175 pounds. *Present Illness.* Ten months ago a cough began, which was very troublesome. A great deal of sputum. To-day noticed blood in sputum for the first time. Pain across chest, due to continued coughing. General weakness, tires easily, appetite poor, bowels regular. Has been unable to work for the lest ten months. *Physical Examination.* Well developed and fairly nourished. Evident loss of weight, worried, harassing cough throughout examination. Mouth and teeth good. Chest well formed. *Left Lung.* Upper third front dullness, bronchial breathing, moist coarse râles, more marked at apex. From angle of scapula behind upward, dullness and râles. Râles heard throughout lung. *Right Lung.* Area of consolidation from second rib upward in front with moist coarse râles. Moist, fine râles in upper third, back. X-ray taken by Dr. Walter J. Dodd. Heart apparently normal. No albumen or sugar in urine.

First injection May 22. Introduced 500 c.c. nitrogen gas into left pleural cavity, going in the fifth interspace inside midaxillary line. Little pain, insufflation well supported.

May 24. Has been troubled with pain on left side up to this morning, but otherwise no untoward symptoms. 1000 c.c. nitrogen gas injected as before. No symptoms whatever except for a slight tightness. The gas is mostly in front of chest. Heart is slightly displaced to the right. Pulse of good quality and regular. The cough has been looser and expectoration easier and increased.

May 27. Pneumothorax not complete. Lung mobile as is evident by the fine râles and respiratory sounds heard from fourth rib in front and from spine of scapula behind. 700 c.c. nitrogen gas introduced. The lung is tympanitic throughout front and back. A few râles heard at apex. Right lung is hyperresonant, marked increased breathing. Some râles heard at apex. Cough has markedly diminished.

May 30. Feels a little better, is sleeping a little better, but appetite has been poor. 400 c.c. nitrogen gas injected; before the introduction of gas the pressure was markedly negative. After the introduction of 200 c.c. it became positive and after 200 c.c. more had been introduced, it was 6 cm. positive.

June 8. Injections of 500, 300 and 200 c.c. of gas on June 1, 3 and 4 respectively. Since the last injection has raised considerable sputum without any trouble. Feeling much better. Coughs very little. 1000 c.c. nitrogen gas injected without any pain whatever.

June 10. Eats and sleeps better. Coughs a little more in the morning but has no cough at night now. Is a little stronger, left lung is tympanitic throughout the front. Very few scattered râles from third rib upward. Weak respiratory sounds in front. Râles plainly heard in left back. Introduced 400 c.c. nitrogen gas, into midaxillary line fifth inter-

space, most of the gas entering the front of the chest. No râles in front. Scattered râles throughout left back.

Manometer showed feeble respiratory oscillations. The nitrogen was introduced at a high pressure. Undoubtedly the pleura in the back is thickened and the pleural cavity is markedly diminished. Considerable pain referred to left hypochondrium. Pain lasted about fifteen minutes. Pulse was good throughout. Rate 84. Heart slightly displaced to right. The right lung is hyperresonant throughout. Increased respiratory sounds, bronchovesicular breathing at apex. Very few râles heard.

June 11. He was shown to the Section on Tuberculosis of the Massachusetts Medical Society.

June 14 *to July* 5. Condition continues good. He has come every three days for replenishing of nitrogen gas. Absorption is slower now needing less nitrogen gas at each injection to keep the lung collapsed.

REMARKS.

This patient was of very dirty habits when he came under treatment. He spat everywhere. I have trained him gradually. Under treatment he has improved mentally and physically. He is happier, sleeps and eats well and has very little sputum and hardly any cough except in the morning.

One day after a rather trying introduction of nitrogen gas he came back greatly alarmed because he had spat up sputum streaked with blood. That was due to my having punctured the lung with the pneumothorax needle before introducing nitrogen gas. No more harm results from this than from puncturing lung during a thoracentesis provided you do *not induce nitrogen gas into the lung.*

Case 17. Eleanora S., 30, married. May 17, 1912. Housewife. North End, Boston. *Family History.* Negative. *Past History.* Five years ago had a right-sided pleurisy and later a troublesome dry cough with pain on right side. She went to Italy where she improved in health but the dry cough persisted. She was married two years ago. *Present Illness.* During the last two months of her recent pregnancy she had considerable pain on the right side and the cough was aggravated. After the confinement the cough and pain became worse. She also began to have chills, night sweats and fever, with a small amount of sputum. *Physical Examination.* Fairly developed and poorly nourished, thin. Pupils equal, react to light. Mouth and teeth in good condition. Knee-jerks normal. *Chest.* Breasts moderately engorged with milk. Left side of chest moves more than right. *Right Lung.* Dullness from third rib in front to apex with increased fremitus and râles. Between the third and fourth ribs is an area the size of a half silver dollar where amphoric breathing is heard. Dullness and râles throughout lower back. Pleural rib in the sixth space midaxillary line. *Left Lung.* Slight dullness at apex with râles and bronchovesicular breathing. Moist râles at the base. X-ray examination showed an extensive bilateral process, much marked on the right, with a cavity and pleural adhesions. Heart apparently normal but rapid in rate, 100. Abdomen, nothing noted. Uterus involuted and apparently normal. There is a moderate amount of lochia.

This is an advanced bilateral case with marked active lesions. Tubercle bacilli in sputum. Temperature 101°, pulse 100, respiration 22. Treated at home.

May 18. Injected 500 c.c. nitrogen gas, going into the fifth interspace midaxillary line on the right. The injection was well tolerated.

Six hours after the injection she began to have pain on the right side with some dyspnea. The pain continued for three days. She had chills and fever. Very little cough but painful. On the fourth day pain began to diminish and gradually disappeared. On the advice of another physician who was called during my absence from town, she discontinued the treatment. Meanwhile she moved out of town.

REMARKS.

This is the only case of the series that has stopped treatment. Undoubtedly it would have been a very difficult case to handle had she remained. The pain she experienced six hours after the action of the morphia had stopped was due to the pleural adhesions which were present and had been stretched by the nitrogen gas. No worthy conclusions can be drawn in this case as the result of the treatment. While this was in press patient asked to be taken again under treatment.

Case 18. Salvatore D., 18, single. December 7, 1911. Shoe shop worker. Chelsea. *Family History.* One sister died of pulmonary tuberculosis last year, otherwise negative. *Past History.* Subject to colds and slight cough in the winter but never sick abed. Denies venereal disease. *Present Illness.* For the last month has been losing his appetite and has grown weaker. An increasing troublesome cough has developed, on several occasions has spat blood. Yesterday spat up a cupful of blood, had a chill and later fever. Feels "all in." Pain on the left side. *Physical Examination.* Well developed and nourished, sallow complexion, apathetic, some dyspnea on slight exertion. Pupils equal and react, mouth and teeth in good condition. *Left Lung.* Dullness throughout left chest in front with slightly increased fremitus and râles at apex. *Right Lung.* Slight dullness at apex with bronchovesicular breathing. No râles anywhere, lung mobile throughout. *Heart* apparently normal but rate rapid, 100. Abdomen negative. Reflexes normal. Advised patient to go home and go to bed.

On the next day was called to see him as he had had a hemorrhage, having raised a cuspidorful of blood. He kept raising blood in spite of medicinal measures. His condition continually becoming worse, Dr. Samuel Robinson was called in consultation as to the advisability of doing an artificial pneumothorax on the left lung, from which the hemorrhage came. The temperature was 102°, pulse 110, respiration 24. Tubercle bacilli in sputum.

December 8. 800 c.c. nitrogen gas were injected into the fifth interspace midaxillary line on the left side. He stood the injection well, but the pulse became feeble, the rate increasing to 130. Twenty minutes later he complained of a great deal of pain on the injected side, necessitating a hypodermic injection of morphia. He passed a restless night. The next morning he had a second hemorrhage, thus making him still weaker. A second injection of nitrogen was made, 500 c.c. being given. He passed a comfortable day with very little cough; the sputum continued bloody.

At night he had a severe chill with a temperature

of 104°, plus 130, respiration 30. He gradually became weaker and died December 12.

REMARKS.

An acute rapid bilateral phthisis with hemorrhage; unfavorable under any form of treatment.

CASE 19. James F. P., 48, married. May 26, 1912. *Family History.* Negative. *Past History as Given by His Physician:* "In November, 1908, he had an attack of grippe while working in Boston. He made a poor recovery and I with two other physicians saw him the following month. At that time tuberculosis was very much in evidence. He went to Greylock Rest in the Berkshires for six weeks, then to Rutland Sanatorium; he remained there for a short time and was advised by the attending physician to go West. During the last six weeks of his stay in Rutland he had one or more hemorrhages and had a very high temperature. He went to Denver, Colorado, and Silver City, New Mexico. He did not improve and came home to Worcester and has remained at home ever since. He has had very good care and does not seem to have very much trouble except at intervals. The stomach and bowels have been bad and cause him no end of suffering. He has had no temperature for the past year and the sputum remains about the same all the time. He has been losing weight." Coughs a great deal, especially in the morning and raises large amount of sputum. No night sweats. Appetite is good, bowels regular. Sleeps fairly well. *Physical Examination.* Weight, 134 pounds. Well developed and fairly nourished, color fair, pupils equal and react, mouth and teeth in good condition. *Chest.* Uneven, marked depression of right chest, left side moves more than right. *Right Lung.* Dullness bordering on flatness throughout right lung from fifth rib upward diminished respiratory sounds. Coarse and fine râles throughout, more marked at apex. At fourth rib in front in an area the size of a twenty-five cent piece there is harsh amphoric breathing. Dullness throughout the back with weak voice sounds. Crepitant and moist râles at the base and above angle of scapula. *Left Lung.* Fine crepitant râles at apex, bronchial breathing. Few moist râles at the base. X-ray examination shows an extensive process on the right with a small cavity in front. The fluroscope shows lung to be adherent to the diaphragm. Mottling throughout left lung. Thoracic aorta apparently normal. Heart apparently normal. Abdomen, negative. Reflexes normal. No sugar or albumen in the urine.

An advanced active bilateral case; the progressive decrease in weight was ascribed to the tuberculous process in view of absence of other causes. Temperature normal, pulse 80, respiration 20.

May 27. Introduced 550 c.c. nitrogen gas into the right pleural cavity going into the fifth interspace outside nipple line. There were absolutely no symptoms.

May 29. Has raised same amount of sputum and he has not felt anything unusual. Introduced 500 c.c. nitrogen gas into the right pleura. A sensation of fullness noted. Pulse kept good rate, 74 throughout.

June 1. Raised more sputum than usual and it was more easily expelled; otherwise nothing noted. Introduced 400 c.c. nitrogen gas. A sensation of tightness felt. The gas was going mostly into the front of the chest. Râles still heard at apex and in the right back. Respiratory sounds diminished. Increased respiratory sounds in the left lung.

June 3. Tight feeling continued for twenty-four hours, raises more sputum now. On examination shows that the nitrogen gas has been mostly absorbed, as is evident by the respiratory and abnormal sounds heard. Introduced 150 c.c. nitrogen gas. Tight feeling throughout chest, some pain in the shoulder. The pain is not severe. There is tympany throughout the anterior portion of chest, few râles faintly heard at the apex. Diminished respiratory sounds in the back. The pneumothorax is not complete.

June 6. 150 c.c. nitrogen gas introduced. A heavy feeling was felt, with slight pains in the right shoulder. After the introduction of the gas the pressure was not markedly altered. At the beginning it was negative, at the end it was 6 cm. of water positive. After five minutes the manometer reading showed the pressure to be even. The heart rate kept the same, 74 throughout.

There were no râles heard in front and but few râles made out in the right back. Respiratory sounds absent except in the back, where they were very faintly heard.

The left lung was hyperresonant throughout the front and back with increased respiratory sounds of a rather harsh character. A few râles heard at the apex.

June 15. Since last injection has raised considerable sputum, otherwise has been feeling well. On examination respiratory sounds heard throughout right lung; fine dry râles at apex and back; slight tympany thoughout right chest. Increased respiratory sounds on the left. Few râles heard .

Introduced 900 c. c. nitrogen gas. This amount did not completely compress lung, as was evident by the râles heard at right apex—though there were no râles heard in any other part of the right lung. The pulse rate kept steadily at 78; the heart was displaced 3 cm. outside nipple line. Marked increase respiration on the left lung. The manometer at that end of the introduction showed a positive pressure of 6 cm.

June 19. 200 c.c. nitrogen gas introduced; this amount has completely obliterated the râles throughout the lung.

June 26. Pneumothorax partially absorbed. 300 c.c. nitrogen gas introduced.

June 27. 150 c.c. nitrogen gas introduced. On physical examination the lung seems to be fully compressed as is evident by absence of râles and very feeble respiratory sounds.

REMARKS.

It is one month since this patient began treatment. When he came he was losing one pound a week, had considerable digestive disturbance and a general feeling of weakness. During the treatment he has lost one pound, has no digestive disturbances, eats better and feels better mentally and physically.

The process in the left lung has certainly not progressed.

In many cases artificial pneumothorax prepares the ground for the ultimate recovery and in many other cases gives certain symptomatic relief unable to be gotten from other methods. Final recovery must always be brought about by the organism itself, *i.e.* the increased resistance, etc. When the

vital resources of the body are gone as in the galloping form artificial pneumothorax does nothing.

Case 20. Peter W. C., 28. *June* 3, 1912. Machinist, Belmont, Mass. *Family History.* Negative. *Past History.* Nineteen years in the United States. Has always worked inside. *Present Illness.* One year ago caught cold, was ill about one month with it. A month later got rheumatism from which he was laid up about two months. He worked for five weeks when he took sick again with a cough, pain in the left side and fever. Night sweats, great deal of cough throughout the day and large amount of expectoration. Has fever and chills almost every day. Increasing weakness and loss of strength. Appetite is good, sleeps well when cough doesn't bother him. *Physical Examination.* Fairly developed and poorly nourished, emaciated and dyspneic. Pupils equal and react; tongue, mouth and teeth good. *Chest.* Symmetrical, right side moves more than left. *Left Lung.* On the left, from fourth rib upward, dullness, increased fremitus; bronchovesicular breathing and moist râles at apex—fine crepitant râles over consolidated area. In back marked dullness and increased fremitus from lower end of scapula extending above the spine, fine crepitant râles. Lung is mobile throughout. *Right Lung.* Good resonance throughout, occasional moist râle at apex. X-ray examination shows extensive process on the left, right lung little involved. *Heart.* Apex beat inside nipple line, rate 130, no abnormal sounds made out. Abdomen, nothing noted. Knee-jerks apparently normal. Temperature 102°, pulse 130, respiration 24. Tubercle bacilli in the sputum.

First Injection. 200 c.c. nitrogen gas introduced into the left fifth interspace in midaxillary line. Patient stood the introduction well, there being absolutely no symptoms. After keeping quiet for half an hour dressed and went away. At the end of the introduction of nitrogen the pulse was 122.

June 5. Has had no pain. Has been feeling about the same. 600 c.c. nitrogen gas injected into the sixth interspace below angle of scapula. Felt some pain all over the anterior left side of chest. Pain soon subsided. After resting half an hour patient left. Temperature 101°, pulse 120, respiration 24.

June 7. Has been raising more sputum than usual but it has been much easier to raise. Feels a little better. Temperature 98.5°, pulse 120, respiration 22. 500 c.c. nitrogen gas introduced into the sixth interspace below angle of scapula. Felt some pain over anterior part of left chest. In ten minutes pain subsided. After resting twenty minutes patient got up.

There is tympany throughout left chest in front and back. No râles heard and the respiratory sounds are markedly diminished. The nitrogen gas is mostly in the front of the chest. The right side shows increased respiratory sounds which are harsh in character. No râles heard. The heart is displaced two fingers' breadth to the right. Its action is good but still rapid.

June 9. Has been raising double the amount of sputum since the last injection. Had considerable cough during the night. This morning sputum was streaked with blood. "No pains, feeling good." Temperature 100.5°, pulse 120, respiration 22. Still evidence of pneumothorax. Injected 600 c.c. nitrogen gas. No pain.

June 13. Since the last introduction of nitrogen gas at the office I have had patient remain quiet at home on account of the extreme hot weather, and I have gone to his home. Appetite has not been so good since the hot spell. Cough and sputum diminished.

Pneumothorax marked up to the fourth rib in front. Respiration marked at left apex—no râles heard. Respiration in right lung much increased throughout, no râles. Temperature 99.5°, pulse 122, respiration 24. Injected 700 c.c. nitrogen gas into left pleural sac. Feeling of tension about chest at end of introduction. Manometer showed a positive pressure of 4 cm.

June 22. Appetite good, gaining in strength, coughing less and raising very little sputum. X-ray by Dr. Walter J. Dodd shows lung to be collapsed up to fourth rib anteriorly. Introduced 300 c.c. nitrogen gas into fourth interspace midaxillary line of left.

Apparently this completly compressed the lung. No râles heard, no respiratory sounds. Coin sound demonstrable throughout left lung. Temperature 100°, pulse 120, respiration 24.

June 23. X-ray examination showed the lung to be totally collapsed except from the third rib up. The apex of the lung is always very difficult to collapse even when there are no adhesions. Indurated or calcified foci may prevent compression for a time.

REMARKS.

It appears from this case that in such an early acute active case, especially when the process is not very marked in the non-compressed lung, the nitrogen gas is retained and smaller amounts are necessary to keep the lung collapsed. The outlook of this case is favorable.

(To be continued.)

Book Review.

The Wassermann Reaction. By John W. Marchildon, B.S., M.D., Assistant Professor of Bacteriology, St. Louis University Medical School. St. Louis: C. V. Mosby Company. 1912.

This manual describes in a hundred pages the technic and practical application of the Wassermann reaction in the diagnosis of syphilis. All the details of apparatus and method are carefully noted in successive chapters, in such manner as to make clear every step of the procedure and to enable its performance by those having the requisite laboratory training and skill. Despite the author's admirable exposition, however, the text is not one for general practitioners, but must remain in the hands of those with special and expert qualifications. Others, nevertheless, will find particular value and interest in the introductory chapter explaining the rationale of the reaction, and in those on the Wassermann reaction in syphilis, in diseases other than syphilis, and on the influence of antisyphilitic treatment on the reaction. The book is well illustrated with 12 figures of apparatus, and with a colored frontispiece representing negative and positive reactions.

THE BOSTON
Medical and Surgical Journal

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TUBERCULOSIS IN CHILDREN.

SOME weeks ago, on the occasion of its ninth annual meeting, the Boston Association for the Relief and Control of Tuberculosis issued in pamphlet form a report from its Committee on Tuberculosis in Children, of which Dr. George S. C. Badger of this city was chairman. This report was based on a year's study of the records of children examined at four of the large hospitals and dispensaries in Boston. The committee estimates that there are possibly 250 school children with active pulmonary tuberculosis in our public schools, for whom no provision has been made and who are a menace to the public welfare. The committee recommends that these children be immediately removed from the public schools, and that the Boston Consumptives' Hospital establish children's day camps in suitable sections of the city for the care of those children who do not need continuous hospital treatment, these camps to be so located as to avoid the long and fatiguing journeys to and from home which have been shown to be harmful to tuberculous children.

The publication of this report provoked a rejoinder from an official of the Boston Board of Health, denying the existence of such extensive tuberculous infection among school children and affirming that all pupils showing any sign of such infection are excluded from the schools by the medical inspectors. To this rejoinder Mr. Seymour H. Stone, secretary of the Association, replied in part as follows through the daily press:—

"From the records of children in four of the large public hospitals it is found that there were in one year 170 cases of definite lung tuberculosis, and the last report of the division of child hygiene shows that they found 133 cases of pulmonary tuberculosis. Based on these facts, the committee of the association estimates there are possibly 250 active tubercular school children.

"The main point of this report is that no provision is being made for these children that are not sick enough to go to a hospital and are perfectly able to attend a special school during the day. The sick children will be cared for at the children's wards at the Boston Consumptives' Hospital at Mattapan when these wards are built. For the children who do not need whole time hospital treatment, this association recommends that the Boston Consumptives' Hospital establish children's day camps.

"The association believes it is advisable for the Board of Health, the School Committee and the Boston Consumptives' Hospital to work out a plan of this sort and we shall be very glad to assist in any way possible."

Further, an acknowledged Boston expert on tuberculosis also made the statement through the daily press that of all the children in the Boston public schools from 40 to 60% are probably infected with tuberculosis, and that of public school children over 15 years of age probably 60 to 75% are thus infected. By this was meant not pulmonary but lymphatic or other latent infection.

Obviously there is a difference of conception as to what constitutes tuberculous infection, or rather as to the signs upon which a diagnosis of such infection should be made. Probably the number of children, as of adults, having a latent tuberculous infection, is considerably larger than is generally supposed. Not all these infected persons, however, are destined ultimately to develop active forms of the disease, nor do they constitute an immediate, though perhaps they are a potential, source of danger to the community. Evidently the subject is one which needs judicious and dispassionate investigation and discussion, for determination of the facts and establishment of a diagnostic standard for forms and degree of tuberculous infection. In another column of this issue of the JOURNAL, we publish a communication suggesting such a standard. All such contributions are to be welcomed as of value in eliciting the truth about the problem and in affording means for its rational and practicable solution.

THE BOSTON DISPENSARY.

UNDER date of October, 1912, was issued recently the first number of *The Boston Dispensary Quarterly*, a new publication devoted to

the interests of the Boston Dispensary and to presenting the progress of its medical and social service. In this issue is incorporated a review of the work of the institution for the year ending Sept. 30, 1912.

"During the past year 32,677 persons made 106,000 visits to the clinics at the dispensary. The district physicians last year made 19,672 visits, treating 9682 persons.

"During the year the dispensary opened its new hospital for children. Seventeen thousand and seventy-six children under fifteen were recorded as patients during the year. In the social service department ten workers assisted 2011 individuals in problems, such as caring for neglected children, providing needed apparatus, adjusting family misunderstandings and cooperating with other charities who assist poor families during the wage-earner's illness.

"Important changes were made in medical organization during the year. The children's medical department was reorganized and placed under the direction of Dr. William P. Lucas, who also has charge of the medical beds in the hospital. In the adults' medical department which annually cares for more than 6000 men and women, Dr. Harry W. Goodall and Dr. Nathaniel K. Wood have been appointed the two physicians-in-charge for 1913, each responsible for six months of the year. An arrangement has been made with the new Peter Bent Brigham Hospital by which these two physicians will receive appointments as associates in medicine on the hospital staff. The dispensary will thus have increased facilities for securing hospital care for patients who require it, and the member of the medical staff will have larger opportunities for scientific work. Arrangements have also been made with the Harvard Post-Graduate School whereby the two physicians will give graduate instruction in the clinic. The teaching of the Tufts undergraduate students will be continued as heretofore.

Among the gifts of the year was an unrestricted legacy of $100,000 from the late Dr. Charles G. Weld; property valued at $18,600 from the Tyler Street Day Nursery; and a gift from William Blodget of $5000 for an elevator in the new hospital.

"The Dispensary invested more than $50,000 in permanent improvements, including the hospital and nurses' home, but has meanwhile added to its endowment a net sum of $40,000. Contributions to current expenses of $15,350 were received. Patients are charged a nominal fee of ten cents, and it is found that nine-tenths are glad to pay. These fees amounted during the year to $21,000—which the managers regard as gratifying evidence of the way the patients feel toward the care given them. The hospital for children and the social service department are entirely dependent upon contributions from the public. The Dispensary asks for $15,000 for the maintenance of the hospital for a year and $12,000 for the social service."

At a meeting of the Hospital Social Service Conference of New York, in that city on Nov. 25, under the presidency of Dr. J. Winters Brannan, president of the Bellevue Hospital, Mr. Michael M. Davis, director of the Boston Dispensary, outlined the organization of social service departments and the efficiency tests which indicate the value of their work.

"A large proportion of the poor patients of charitable dispensaries and hospitals are not only suffering from disease, but there are family conditions of poverty, unemployment and ignorance, which must be dealt with if adequate medical treatment for their disease is to be made possible. Trained social workers should, therefore, be attached to the staff of every hospital and dispensary. Every hospital should be responsible for following up its patients after discharge, and for seeing that they are not sent back to home conditions which are practically certain to cause the recurrence of the disease for which they were treated.

"Tests of efficiency have been conducted at the Boston Dispensary which indicate that social service work can be of great benefit when organized as a part of regular clinical service in dispensaries; and that the amount which adds to the efficiency of treatment of patients much exceeds its proportionate addition to the expense."

These efficiency tests were described by Mr. Davis in an article in the issue of the JOURNAL for June 20, 1912 (Vol. clxvi, p. 915). With its remodeled quarters, increasing endowment, and ably organized staff and administration, the Dispensary should continue and increase its honorable service as the oldest of Boston medical charities.

A NEW ASPECT OF NATURE.

IT has been generally customary, in medicine as well as in other departments of human knowledge, to regard natural processes as superior in aptness and efficiency to those of art, which merely imitate or assist but never surpass nature. The *vis medecatrix naturae* has long been esteemed the fundamental power, which medicine seeks only to supplement and must always invoke if it would hope for success. A contrary mode of regard, however, is suggested by the following item from a recent issue of the *Medical Press and Circular:*

VIS MALEFACTRIX NATURAE.

The healing power of "Nature's own sweet and cunning hand" has been sung so often by the poets and bedside clinicians that we have al-

most come to regard it as perfect. We commend a system of treatment as "natural," and what higher praise can we give a remedy than that it is "Nature's own"? If we look, however, at Nature's work with the modern eye of criticism we find her sometimes a poor enough bungler in therapeusis. She has three or four ways of dealing with all emergencies, and these are not always efficient. Fever, force, swelling, and scar-tissue make up much of her armament, and we find her "exerting an unwearied power" with one or other of these in season and out of season. If our body lodges a few pneumococci Nature runs up our temperature in a very ineffective effort to kill the invaders. She pushes a stone along a tube never intended for such traffic, till its unfortunate owner collapses from the pain. Any local trouble is promptly dealt with by a swelling. Often this is comparatively harmless; but why obliterate an unfortunate child's glottis to attract attention to some slight laryngeal irritation? And then her methods of repair; "one touch of Nature makes the whole world" scar-tissue, a substance that contracts when it should stretch, and stretches when it should contract, till our hospitals are "rich with the spoils of Nature." The trouble is that Nature has no second string. She has one way of dealing with a given condition, and if that fails—she keeps on doing it. Her methods are fairly satisfactory as a temporary treatment, but they do not bear the test of time—scar-tissue will fill a gap, but after a few weeks its failings become very obvious. If she would learn to apply a little more discrimination to the use of her remedies, she might even now live down the reproach we are sorry to say she has earned, of being somewhat of a short-sighted empiricist in many of her therapeutic efforts.

It would seem, nevertheless, that perhaps the writer somewhat maligns Nature. It should be remembered that the cunning of human art is after all only a natural phenomenon, one of the supreme products of natural evolution. That man is able, after some fashion and in small ways, to take his destiny in his own hands, is a result of Nature's long experimental labor, a final product from the ceaseless laboratory of Time.

THE ROBERT BENT BRIGHAM HOSPITAL.

IN the issue of the JOURNAL for Dec. 5 we announced the appointment of the chiefs of staff of the new Robert Bent Brigham Hospital. This institution, whose buildings on the summit of Parker Hill, Roxbury, are now rapidly approaching completion, was designed to fulfil the provisions of the donor's will to provide "for the medical and surgical care of patients afflicted with chronic and incurable diseases." The idea of the trustees has been in the interpretation of this to realize that incurable is an entirely indefinite term, and that which is incurable today may be curable tomorrow.

In arranging the staff it has been recognized that in a chronic hospital it is not practical to have a purely surgical and a purely medical service, since no one case will probably always be surgical or always medical. Consequently a physician-in-chief has been appointed, to whom all the patients will be admitted, and under whose general direction they will remain as long as they remain in the hospital. He will occupy the place practically of the family physician in a household. He will have associated with him a surgeon, an orthopedist, and other specialists, to whom a case may be transferred for special treatment, but with the understanding that when that special treatment is completed, they will be transferred back again to the physician-in-chief.

It is the expectation that the men appointed will carry on the best possible medical work and that the highest grade of scientific study of the diseases with which these patients are afflicted will be conducted, in the hope of discovering means of relief not only for the individual, but for the race as a whole.

The ideals of this new institution are of the highest and the conditions under which its development begins are favorable to the finest grade of work in relief and in research. It should prove not only a credit but a benefit to our growing community, and to medical science and education.

MEDICAL NOTES.

PHYSICIANS' STUDY TRAVELS.—A committee was appointed to organize the American Society for Physicians' Study Travels at a subscription dinner held December 7 in Philadelphia, Dr. James M. Anders being elected chairman. All American physicians interested in foreign study travels are invited to correspond with the chairman at his address, 1605 Walnut Street, Philadelphia, Pa.

SYRACUSE UNIVERSITY MEDICAL DISPENSARY.—On Saturday of last week, Dec. 14, the corner stone of the new medical college dispensary building at Syracuse University was laid with appropriate exercises. The principal address

was by Dr. William S. Thayer of Johns Hopkins Medical School.

A Prolific Centenarian.—George Munsinger, of Howard, Kan., who is said to have been born on Dec. 11, 1812, in Germany, celebrated last week his supposed centennial anniversary. He has had a total of 149 descendants, of whom 144 are now still living.

London Death Rates in October.—Statistics recently published indicate that the total death-rate in London for October, 1912, was 15.5 per 1000 inhabitants. Among the several districts and boroughs, the highest rate was 22.3 in Shoreditch, one of the east end slums; and the lowest was 10.3 in Woolwich, a southern suburb.

A Vigorous English Surgeon.—Dr. Sir Thomas Boor Crosby, the retiring Lord Mayor of London, has announced his intention of resuming the active practice. Though he has led an arduous life, and is now 82 years of age, his physical vigor and enthusiasm appear unabated.

Interstate Abolition of the Common Towel.—An amendment to the interstate quarantine regulation, issued on Dec. 9 by the United States Treasury Department, ordered the abolition of the common towel from all railroad cars, vessels, and other interstate vehicles, and from all stations. This action apparently nationalizes the hitherto local and sporadic abolition of another public abomination.

The Sanitation of Guayaquil.—Report from Washington, D. C., on Oct. 25 stated that definite plans were being formulated for the permanent sanitation of Guayaquil, Ecuador.

"The United States and Ecuador have agreed to coöperate in bringing about the immediate sanitation of the harbor and city of Guayaquil, which for generations has been known as the 'pest hole of the Pacific.' This agreement was disclosed in a request received today by the Comptroller of the Treasury from the War Department for an opinion as to the use of funds in the undertaking. It is believed the Comptroller's decision will be favorable. Guayaquil has been for years notorious the world over as a breeding place of yellow fever, cholera, smallpox and other deadly diseases. For years the State Department has been endeavoring to bring about a sanitation of the port, but now its cleaning up is of vital importance to the United States. Army medical officers in the Canal Zone have declared that if Guayaquil remains in its present condition after the Panama Canal is opened ships from that port must either be barred from passage through the Canal or subjected to quarantine regulations so rigorous as to delay their passage for days or even weeks.

"The shipping of the entire world would be menaced by allowing ships from Guayaquil to pass through the Canal. To Ecuador also the question is of great importance, involving the very prosperity of the country. Guayaquil is practically the only seaport of consequence on her coast. At first it was proposed that a corps of medical officers be sent from the Canal Zone to Guayaquil, their salaries and expenses to be paid by Ecuador for whatever period they were engaged in the work. The judge advocate general of the army, General Enoch Crowder, decided that such procedure would be unlawful.

"It is now planned to defray the expenses of the preliminary survey out of the funds appropriated for sanitary work in connection with the construction of the Panama Canal. Precedent for this procedure is found in the fact that the cities of Panama and Colon on the isthmus were sanitated under this appropriation."

Recent report from the Canal Zone states that Colonel William C. Gorgas has been detailed by President Taft to investigate the sanitary conditions at Guayaquil. Dr. Gorgas sailed from Panama to Ecuador on Dec. 4.

A Living Centenarian.—Anthony Redelberger, of Pottsville, Pa., is said to have been born in 1810. He is still in vigorous health.

BOSTON AND NEW ENGLAND.

Baptist Training School Graduation.—At the graduation exercises of the New England Baptist Hospital Training School for Nurses, held recently in Boston, the principal address was made by Dr. George S. C. Badger, of this city. Diplomas were awarded to 9 pupil candidates.

Massachusetts Homeopathic Medical Society.—At the regular monthly meeting of the Massachusetts Homeopathic Medical Society, held recently in Boston, addresses were made by Dr. Charles B. Davenport, of the Carnegie Institute of Washington, D. C., and by Clifford W. Beers, secretary of the National Committee for Mental Hygiene.

Proposed New Home for McLean Nurses.—A meeting was held in Boston recently in the interests of a proposed new home for women nurses at the McLean Hospital, Waverly, Mass. Addresses were made by Dr. George T. Tuttle,

Medical Superintendent of the hospital, and by Miss B. S. LeLacheur, of the Boston District Nursing Association, emphasizing the need of the new home, for which it is earnestly hoped that sufficient funds may soon be generously subscribed.

RECENT BEQUESTS TO WORCESTER HOSPITALS.—The will of the late Harriet D. Brown, of Worcester, Mass., who died on Nov. 23, contains, among numerous charitable legacies, bequests of $8,000 each to the Worcester City Hospital and to the Memorial Hospital, Worcester, and $5000 to the Hahnemann Hospital, Worcester.

STATE HOSPITAL APPROPRIATION.—The trustees of the Foxboro (Mass.) State Hospital have recently given notice that they will ask this year for an appropriation of $107,000 for providing new buildings and improvements at the Norfolk State Hospital. "The amount asked for is to be expended largely for the purpose of erecting a service building, shops and farm buildings, which the trustees believe should be built before the new hospital is occupied."

MARLBOROUGH GENERAL HOSPITAL.—On Friday, Dec. 6, 1912, the new general hospital at Marlborough, Mass., was opened with appropriate ceremony.

"The building is situated at a high elevation and commands a view of the country for 25 miles around. There is an administration building and two wings. This arrangement gives a maximum of fresh air and sunlight in all the rooms and also an opportunity for inexpensive enlargement in the future without interfering with the symmetry of the building. The construction is of concrete and the building cost $57,000. The trustees of the hospital had $36,500 at their disposal for building purposes. Much of the needed money will be met by contributions.

"The central portion of the building, on the first floor, is to be used exclusively for administration purposes. It contains offices, waiting rooms, consulting rooms, and matrons' rooms in front and the operating room in the rear. The second floor is devoted to private patients.

"The east wing has accommodations on the first floor for six patients and on the second floor for a like number of maternity patients. The west wing is arranged much like the east wing except that the second floor is divided for the more convenient separation of typhoid or other cases requiring isolation. All these rooms have the necessary auxiliary rooms of a first-class hospital. The domestic quarters and working quarters are located in the basement. The total accommodation of the hospital is for 36 patients. Dr. Carmilus T. Warner, of Marlborough, was chairman of the building committee."

BOSTON SCIENTIFIC SOCIETY.—At a meeting of the Boston Scientific Society on Dec. 10, the principal address was made by Mr. John Ritchie, Jr., on "Some Public Health Problems."

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Dec. 7, 1912, is 242, against 198 the corresponding week last year, showing an increase of 44 deaths, and making the death rate for the week 17.53. Of this number 122 were males and 120 were females; 234 were white and 8 colored; 153 were born in the United States, 79 in foreign countries, and 10 unknown; 39 were of American parentage, 162 of foreign parentage, and 41 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 43 cases and 0 deaths; scarlatina, 33 cases and 1 death; typhoid fever, 5 cases and 1 death; measles, 148 cases and 2 deaths; tuberculosis, 74 cases and 17 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 38, whooping cough 4, heart disease 40, bronchitis 6. There were 13 deaths from violent causes. The number of children who died under one year was 49; the number under five years 65. The number of persons who died over sixty years of age was 65. The deaths in hospitals and public institutions were 78.

Deducting the deaths of non-residents, the total is 211. The corrected death-rate is then 15.28.

Cases of infectious diseases reported to the Boston Board of Health for the week ending December 10, 1912, are: Diphtheria, 34; scarlatina, 42; typhoid fever, 6; measles, 160; smallpox, 0; tuberculosis, 70.

The death-rate of the reported deaths for the week was 14.70.

NEW YORK NOTES.

NEW YORK DIVISION OF MEDICAL RESERVE CORPS.—The New York Division of the Medical Reserve Corps of the United States Army was formally organized at Fort Jay, Governor's Island, December 7. There are 200 members of the Corps in New York State, of whom 114 are practicing in New York City, and practically

all of these are either teachers of medicine or connected with the large hospitals.

A course has been laid down for the officers which includes a study of the organization and personnel and field equipment of the Medical Department as well as of hospital administration, sanitation and field service. This study will be augmented by attendance at manoeuver camps and by demonstration by ambulance companies at the posts around New York.

Vital Statistics for November.—In November the death-rate in the city is usually about the lowest of the year, but this year it was slightly higher than that of either September or October. It must be remembered, however, that in September there was an exceptionally low rate—12.11, the smallest monthly death-rate on record. The weekly reports of the Health Department show that in the month of November the rate was 12.91, as against 12.66 in October and 13.69 in November, 1911. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from typhoid fever declined from 14.5 in October to 10.5 in November; the weekly average from whooping-cough, from 4.75 to 3; from diarrheal diseases under five years of age, from 86.25 to 42.75; from hernia and intestinal obstruction, from 11.25 to 10.75; and from cirrhosis of the liver, from 21.75 to 18.75. Among the diseases in which there was an augmented mortality were the following: The weekly average of deaths from measles increased from 1.25 to 3; from scarlet fever, from 4.75 to 5.25; from diphtheria and croup, from 14.75 to 21.75; from epidemic cerebrospinal meningitis, from 1.75 to 3.25; from influenza, from 3 to 4.25; from pulmonary tuberculosis, from 138.25 to 147.25; from acute bronchitis, from 10.5 to 15.25; from pneumonia, from 81.5 to 94.75; from bronchopneumonia, from 68 to 74.5; from cancer, from 74.5 to 84.25; from organic heart diseases, from 157.25 to 164.25; from appendicitis and typhilitis, from 8.25 to 9; from Bright's disease and acute nephritis, from 108.25 to 116.5; and from puerperal diseases, including septicemia, from 9.75 to 12.

Association of Life Insurance Presidents.—At the first day's session of the sixth annual convention meeting of the Association of Life Insurance Presidents, at the Hotel Astor, on December 5, F. W. Jenkins, president of the Security Mutual Life Insurance Company of Binghampton, N. Y., presented the report of the health committee, in which he recommended legislation for the extension and improvement of vital statistics. A report on typhoid fever was presented by Dr. Allan J. McLaughlin of the U. S. Marine Hospital and Public Health Service, and Dr. Watson S. Rankin, secretary of the North Carolina State Board of Health, gave one on his work in endeavoring to improve the conditions in towns in which the death-rate is above the average.

Work of Pellagra Commission.—The pellagra commission of the New York Post-Graduate Medical School and Hospital, which was financed by Col. Robert M. Thompson of New York and John H. McFadden of Philadelphia, and the head of which was Capt. J. F. Siler, U. S. A. Medical Corps, has now returned, after spending four and a half months in studying the disease in South Carolina. The data collected relating to the epidemiology of pellagra are probably the most complete ever obtained, but whether any light as to its etiology has been gained can be known only after a detailed investigation of the studies made. It appears that there are at present not less than 50,000 persons in the South suffering from pellagra, and that while the manifestations of the disease are becoming less severe, the number of cases is not diminishing; also, that while the affection at first was confined almost exclusively to the poorest class, it is now spreading to a considerable extent among the well-to-do. The commission is of the opinion that its prevalence is greater than has been supposed. Thus, in Spartansburg County, where the commission's field headquarters were, the local physicians had reported 162 cases, but a careful investigation showed that the actual number was between 300 and 400. One result of the visit of the commission was that the inhabitants became so interested that they have started a movement to establish a pellagra hospital in the city of Spartansburg. As the result of a consultation of the local physicians with Dr. Garrison of the commission, a committee, consisting of three mill presidents, a member of the Legislature, and one physician, was appointed to devise ways and means for raising the necessary funds and selecting a site; and it is now stated that sufficient money has been subscribed to assure the success of the undertaking. The Post-Graduate Commission has

expended only half of the $30,000 donated by Col. Thompson and Mr. McFadden, and it is purposed to send out another similar commission in the spring.

RECENT HOSPITAL BEQUESTS.—Mr. and Mrs. James Shevlin of Brooklyn have made a gift of $100,000 to the Bishop Loughlin Memorial Fund, which, it has been decided, shall be devoted to the needs of St. Mary's Hospital, Brooklyn. This institution has a debt of $118,000, and the money will be deposited with a trust company until the remaining $18,000 has been raised.

Under the will of the late George F. Vietor of New York the German Hospital and Dispensary receives a legacy of $5,000. Among the charitable bequests in the will of Ferdinand Hermann of New York are $2,500 each to Mount Sinai Hospital, the Montefiore Home and Hospital for Chronic Invalids, and the Visiting Guild for the Crippled, and $2,000 each to St. John's Guild and the New York Association for Improving the Condition of the Poor.

STATE CONFERENCE OF CHARITIES.—Among the delegates appointed by Mayor Gaynor to represent the city at the thirteenth New York State Conference of Charities and Correction, held at Syracuse on November 19, 20 and 21, were Commissioner Drummond of the Department of Public Charities and Drs. Leo K. Frankel and Daniel C. Potter.

OFFICERS OF ACADEMY OF MEDICINE.—At a meeting of the New York Academy of Medicine held on November 7 Dr. William M. Polk and Dr. L. Emmett Holt were renominated for president and vice-president respectively. The venerable ex-president, Dr. Abraham Jacobi, presented his resignation as a trustee of the Academy, which was reluctantly accepted after eulogistic remarks had been made by Dr. Holt, who occupied the chair, and Drs. Leo Tobias and Joseph D. Bryant. At this meeting the general topic for scientific discussion was "Work in Preventive Medicine of the Division of Laboratories, Health Department, New York," and papers were read by Dr. William H. Park, Dr. Matthias Nicoll, Jr., and others.

RESUSCITATION FROM GAS POISONING.—Recently the Consolidated Gas Company announced to the public that it had purchased a pumotor, and that it was prepared to send, on notification, a special emergency wagon with the apparatus to any case of poisoning by illuminating gas in the city. The first opportunity for its use occurred on November 7, when it was apparently the means of saving the life of a woman in a dying condition from this cause who had been taken to the Flower Hospital. The call for an ambulance conveyed information as to the nature of the case, and when the patient arrived at the hospital the gas company's emergency wagon was already on hand.

OPENING OF CLINICS TO MEDICAL GRADUATES. The Department of Public Charities has issued an order to the effect that in the future all clinics held in the amphitheatre and operating rooms of the hospitals of the department shall be open to duly licensed graduates in medicine and to the students in all regularly organized medical schools and colleges, and has furthermore ordered that tickets shall be issued by the secretary of the department for distribution by the secretaries of the several medical schools and societies of the city, which will entitle the registered holders thereof to admittance to these clinics.

PUBLIC HEALTH EXHIBIT.—During the past season a small public health exhibit, which included a number of frames from the department's tuberculosis exhibit, was shown by the State Department of Health, acting in co-operation with the State College of Agriculture at Cornell University, at a series of county fairs. It was produced under the direction of the Division of Publicity and Education of the Health Department and Prof. H. N. Ogden of Cornell and a circular written by the latter, entitled "Health Hints for Country Households," was widely distributed. Prof. Ogden was personally in charge of the exhibit, and was called upon to answer many questions relative to ventilation, adenoids, diphtheria antitoxin, etc. It is stated that antagonism to vaccination was frequently voiced at the fairs; showing the need for educational effort in regard to the matter.

DIVISION OF COMMUNICABLE DISEASES.—The latest *Monthly Bulletin* of the City Health Department is largely devoted to the work of the Division of Communicable Diseases. In speaking of the Association of Tuberculosis Clinics it states that for some time past there has been in

existence an association composed of the physicians attending the clinics, and that meetings are held every two months during the winter, at which physicians of prominence speak upon subjects more or less closely allied with tuberculosis clinic work. The attendance at these meetings has been large, and the interest of the members very genuine and earnest. A recent development in the department is a lecture course for nurses. The growing interest in public health matters, the important part taken in them by the various departments of the city government, and the essential co-operation therein of social workers has rendered advisable a systematic course of instruction for the nurses of the Department of Health. The department, therefore, in co-operation with the Nurses' Settlement, the Teachers' College, and the Charity Organization Society (through the Sage Foundation and the Committee on Co-operation) arranged for a series of lectures, to be given by its officers and by representatives of these organizations, upon the activities and methods of the city in dealing with public health matters, home nursing, social work and charitable aid. A tuberculosis course was arranged and managed by the Division of Communicable Diseases, and the introductory lecture was given early in June by Dr. H. M. Biggs, General Medical Officer. Following this, the work of the various divisions of the department was presented each week, and, beginning with the first of October, other subjects were taken up by the co-operating organizations. There can be no question that the co-operation of the Health Department with other agencies in this and other matters, such as the work of reducing infant mortality, is a distinct advance, which cannot fail to be of great service in promoting the health and welfare of the community.

Current Literature.

New York Medical Journal.

November 30, 1912.

1. Dukes, W. E. *Gastric and Duodenal Ulcers.*
2. Wright, J. *The Inheritance of Acquired Characters. IV.*
3. *Persson, G. H. *Urethral Drainage in the Treatment of Chronic Urethritis.*
4. Macy, M. A. *The Borderline Case; a Vital Problem.*
5. Frescoln, L. D. *The Induction of Anesthesia.*
6. Baskerville, C. *Air Impurities (Concluded).*
7. Kessler, E. G. *Diet in Carcinoma.*
8. Pisko, E. *Postyen and Its Natural Hot Sulphur Mud Baths.*
9. Garrison, F. H. *In Memoriam: General Robert Maitland O'Reilly, Surgeon General.*

3. From his study of the treatment of chronic urethritis, Persson concludes in part as follows:—

1. Suitable drainage in the urethral canal is indicated in the treatment of urethritis, because it provides for rapid elimination of pathogenic bacteria and their products.

2. Sterile drainage is of great value as a diagnostic means to determine the presence of gonococci in doubtful cases.

3. Antiseptic drainage serves the same purpose in the urethral canal as applications of gauze in surgical treatment of wounds.

4. Drainage material used in the urethra must be absorbent in character, without which property it is useless.

5. Lactic ferments are indicated in the treatment of chronic urethritis, because these bacteria when properly used have germicidal effects on the offending organism in the urethra.

6. Certain lactic ferments produce under favorable conditions bacterial products which increase the activity of cells with which they are brought in contact, thus promoting the absorption in this instance of the perigranular infiltration that is the characteristic pathological factor in chronic urethritis. [R. M. G.]

The Journal of the American Medical Association.

November 30, 1912.

1. *Coleman, T. D. *Arteriosclerosis.*
2. *Southworth, T. S. *The Menace to the Young Child of the Common Infectious Cold.*
3. *Ehrenfried, A. *The Occurrence and Etiology of Club-Foot.*
4. Ostheimer, M. *The Value of the Social Service Department to the Children's Dispensary.*
5. *Schloss, O. M. *The Infection of Rhesus Monkeys with Blood from Patients with "Rheumatic Fever."*
6. Cole, L. G. *The Value of Serial Radiography in Gastro-Intestinal Diagnosis.*
7. Erdman, H. B. *The Origin of Tube-Casts.*
8. Cabot, A. T. *Present Standing of the Operation of Litholapaxy.*
9. Lower, W. E. *Suprapubic Cystotomy for Vesical Calculus, Indications and Operative Procedure.*
10. Fuller, E. *Seminal Vesiculotomy; Its Purpose and Accomplishments.*
11. Wood, C. A. *Death and Blindness from Methyl or Wood Alcohol Poisoning with Means of Prevention.*
12. Comrai, J. H. *A Plea for Longer Intervals in Milk Feedings.*

1. Coleman adds little to our knowledge of arteriosclerosis but gives a good general review of the probable etiologic factors which he believes to be stress and strain of modern life, infections and intoxications, alcohol, tobacco, tea, coffee, lead and mercury. Much more may be expected from prophylactic treatment than from treatment aimed at amelioration after the disease is well started.

2. Southworth regards the danger from infectious colds in children as chiefly due to the development of otitis media and sinus complications and secondarily to the bad effects on nutrition.

3. Ehrenfried estimates that congenital talipes occurs approximately once in every thousand births and in one-tenth of all infants with congenital deformities. Equinovarus constitutes about 80 per cent. and calcaneovarus 20 per cent. About 70 per cent. are male, 55 per cent. are double and 45 per cent. single. Of single cases 60 per cent. involve the right foot and 40 per cent. the left. Club foot is known to have occurred in near relatives in 5 per cent. of the cases. About 33 per cent. of all patients are the first-born.

5. Schloss shows experimentally that the blood of

rheumatic fever patients contains no infectious virus capable of infecting rhesus monkeys. Either the causative agent of the disease is not present in the circulation in sufficient quantity or if it is the rhesus monkey is immune to the infection. [E. H. R.]

DECEMBER 7, 1912.

1. HERRICK, J. B. *Clinical Features of Sudden Obstruction of the Coronary Arteries.*
2. DUTTON, W. F. *Laws Relative to the Sanitary Control of Public Eating- and Drinking-Places.*
3. *KIEFER, G. L. *The Control of Contagious Diseases in a Municipality.*
4. KERR, J. W. *Procedure in Quarantine Practice: Desirability of the Reconsideration of Present Methods, Especially in Relation to the "Minor" Infectious Diseases.*
5. SMITH, E. *Pleural Vomicae; with an Analysis of Sixteen Cases.*
6. HARSHA, W. M. *Prognathism, with Operative Treatment.*
7. ROARK, B. H. *Blennorrhagic Keratosis.*
8. DEBUYS, L. R. *Exophthalmos in Scurvy.*
9. FORDYCE, J. A. *Occupational Skin Diseases.*
10. STEVENSON, M. D. *Occupational Eye Diseases and Accidents.*
11. FURNISS, H. D. *Some Types of Ureteral Obstruction in Women.*
12. SNOKE, J. H., AND STRICK, E. J. *A Case of Suspected Pulmonary Blastomycosis.*
13. *EGGLESTON, C. *The Relative Value of the "Natural" and the Synthetic Salicylates. A Study of the Literature.*
14. EASTMAN, J. R. *A Method of Continuous Dilatation of Extensive Urethral Stricture.*
15. FIELD, M. *Fat Embolism from a Chronic Osteomyelitis.*
16. ALLPORT, F. *New Mastoid Chisels.*

3. Kiefer believes that our first step in the control of contagious diseases is a thorough education of the public in the dangers of contact infection.

13. Eggleston finds evidence that the artificial salicylates are quite as effective and reliable as the natural and no more liable to produce unfavorable action under similar conditions. [E. H. R.]

BRITISH MEDICAL JOURNAL.

NOVEMBER 16, 1912.

1. *RANSOME, A. *An Address on the Duties of the State in Regard to Tuberculosis.*
2. *GIBB, J. A. *Tuberculosis in General Practice, with Special Regard to Tuberculin Treatment.*
3. PREST, E. E. *Reflections on the Importance of Toxin Saturation of Tissues. Considered in Relation to the Treatment of Pulmonary Tuberculosis.*

BRITISH MEDICAL ASSOCIATION.

SECTION OF DISEASES OF CHILDREN.

4. JONES, R. *Introductory Remarks by the President.*
5. *STILES, H. J. *Discussion on the After-results of Major Operations for Tuberculous Disease of the Joints.*
6. *HUTCHISON, R. *Discussion on the Dyspepsias of Childhood after the Period of Infancy.*
7. ELMSLIE, R. C. *Fibrous and Fibro-cystic Osteitis.*
8. SIMPSON, G. C. E., AND DUNN, N. *On Spasmodic Contraction of the Peronei in Flat-foot.*
9. ARMOUR, T. R. W., AND DUNN, N. *Spasmodic Club-foot.*
10. JANSEN, M. *Physiological Scoliosis.*
11. EDINGTON, G. H. *Imperforate Anus with Perineoscrotal Orifice.*
12. HAUGHTON, W. S. *A Recent Case of Lorenz's Operation, Demonstrating by X-rays the Development of the Acetabulum.*
13. *LAPAGE, C. P. *Tuberculous Infection and Tuberculous Disease in Infancy and Childhood.*
14. EVE, F. C. *A System of Printed Anamnesis Questions for Children Out-patients.*

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE.

15. SMITH, R. P. *Discussion on the Psychoses of the Climacteric.*

1. Ransome does not think that the state should try to treat disease but only to prevent it. He thinks treatment should be in the hands of voluntary agencies. The state can and should take practical measures to (1) abolish the bacillus, (2) improve the physical condition of the people and so diminish their susceptibility to the disease, and (3) destroy the abiding places of the bacilli of the disease. These points he considers in some detail. As to the first, he finds it theoretically correct but practically impossible. The second point is of great importance. He describes the movement for better housing and working conditions, proper ventilation of schools and all public buildings, regulating the height of buildings, etc. This, the second point, covers the third as well.

2. Gibb's remarks are largely on the use of tuberculin. He believes tuberculin should be regarded only as an adjunct, often an important adjunct, to hygienic measures and that only those trained in its use should employ it. His experience in using tuberculin has not been sufficient to be of value; it does not agree with American results. In bronchial glandular disease he speaks of enlarged veins on the chest as a frequent sign. (This is rare in this country.) He is unable to express an opinion in favor of sanatorium treatment for the poor except in very early cases(!) His remarks on diagnosis are not of interest: what he says concerning prognosis is vague and indefinite. He discusses specific treatment at some length in an unsatisfactory manner. The article is not of great interest.

5. This is a long paper on end results of the operation for tuberculous disease on the knee, hip, elbow and ankle joints, with statistics and discussion of operative procedures. The subject is discussed by many others present.

6. In discussing dyspepsia in childhood, Hutchison, among other things, lays stress on the importance of a congenital predisposition toward dyspepsia. He believes that many children are born dyspeptics, coming from dyspeptic and neurotic families. He believes that too much stress is laid on dental caries as a cause.

13. Lapage calls attention to the necessity of distinguishing between tuberculous infections and tuberculous disease. In this paper he summarizes the results of three years' work on tuberculosis in the outpatient department and ward of a children's hospital along lines pathological, and according to the cutaneous test, the x-ray examination and the general physical examination. He believes the bulk of evidence shows that infection is of the glands primarily and not secondarily from the disease in some other organ. The tuberculin tests he holds to be specific in children, but a positive reaction need not necessarily mean that the child is "ill with tuberculosis." He states the conditions under which a negative reaction may take place. He gives statistics as to the reaction from his patients. In children x-ray examinations agreed very closely with clinical conclusions. He believes that in children, pulmonary tuberculosis usually starts at the roots and spreads therefrom. The glands are around the root of the lung and not in the posterior mediastinum. Therefore mediastinal glands large enough to cause percussion changes in the back are rare. He believes it fatal to wait for definite physical signs, far less for bacilli in the sputum. It is not the apices which are to be studied in children and even a negative physical examination must not be held to exclude intrathoracic disease; special methods of diagnosis must be employed. Slight general symptoms

are of the greatest importance. This paper is of the greatest value and interest not only to pediatricians but to every physician. [J. B. H.]

EDINBURGH MEDICAL JOURNAL.

NOVEMBER 14, 1912.

1. SMITH, J. L. *The Place of Pathology in the Medical Curriculum.*
2. BERRY, G. A. *Habit as Exemplified in the Functional Activity of the Eye Muscles.*
3. *CROOM, J. H. *Eclampsia in the Edinburgh Maternity Hospital, with Special Reference to Its Seasonal Incidence.*
4. *FRASER, J. *Observations on the Situation of the Lesions in Osseous Tubercle.*
5. DANDSON, H. S. *Transplantation of the Ovary in the Human Being; Record of Three Cases.*

3. Croom shows by the statistics at the Edinburgh Maternity Hospital that eclampsia is increasing, but its mortality decreasing, at least in this hospital. The reasons for this phenomenon he discusses in detail.

4. Fraser discusses the influences affecting the occurrence of bone tuberculosis, and the methods of infection. This latter he believes to be a blood-borne infection resulting in a chronic tuberculous endarteritis of the nutrient vessels. There are numerous excellent plates. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 44. OCTOBER 29, 1912.

1. *SCHITTENHELM, A. *The Union of Formaldehyde with Uric Acid and the Purin Bases.*
2. *MARTINI. *Pure Culture of the Cause of the Venereal Granuloma.*
3. TSCHACHOTIN, S. *Effect of Rays on Cells and the Question of Imitating It Chemically.*
4. SAATSOOF, L. *A Simple Method of Recognizing and Quantitating Fat in the Stools by Means of the Microscope and a Color Reaction.*
5. REYE, E. *Occurrence of Diphtheria Bacilli in the Lungs.*
6. JACOBS, C. *Further Evidence of Primary Polyhemia and Its Cause.*
7. ORTMAN, G. *Seven Cases of Psychic Disease Cured by Gynecological Treatment.*
8. HIRSCHEL, G. *Local Anesthesia in Operations on the Pharynx and Esophagus.*
9. BRANDES, M. *Death from Embolus after Injection of Bismuth Paste into a Fistula Following Empyema.*
10. VULPIUS, O. *The Aluminum Tissue-bandage.*
11. LEHLE. *Hematoma of the Vulva.*
12. SCHLÜCHTERER, B. *Hemiplegia in the Early States of Syphilis.*
13. FEHSENFELD, G. *The Noesske Method of Treatment of Venous Stasis.*
14. STANDENMAYER. *Medicinal Treatment of Cancer.*
15. STUMPF, L. *Results of Vaccination in Bavaria in 1911.*
16. WOLFF-EISNER, A. *Production of Hypersusceptibility with Native Proteins.*
17. BOSSELMANN, R. *Comparative Tests with Roentgen Apparatus.*
18. RIEDEL. *Partial or Complete Destruction of the Cystic and Common Ducts by Stone.* (*Concluded*).

1. Schittenhelm describes an improved method of testing for uric acid in the blood. Qualitative or quantitative tests can be made by his method. (At a meeting of the Boston Society of Medical Sciences on Nov. 19 Dr. Otto Folin reported a new, simple method of his own for demonstrating uric acid qualitatively or quantitatively in urine or blood. These new tests are likely to be of great value in the study of gout and of other metabolic diseases.)

2. The writer reports briefly having cultivated from a venereal granuloma in a sailor a Gram-negative, capsulated diplococcus which he believes to be the cause of this disease. [G. C. S.]

No. 45. NOVEMBER 5, 1912.

1. *GROBER, J. *Contraction of Muscle and Swelling of Colloid.*
2. *SUTER, F. *Final Results of Sixty Nephrectomies for Tuberculosis.*
3. SCHÜRER, J. *Septic Rheumatoid.*
4. HOPPE, J. *Injury to the Eyes by Eclipse of the Sun.*
5. EISENBACH, M. *Pituglandol in Midwifery.*
6. SÜHMER, A. *Neosalvarsan.*
7. CRONQUIST, C. *Observations on the Cause of Neuro-recurrence after Salvarsan.*
8. v. BAEYER, H. *Local Heat by Steam in Therapeutics.*
9. WAHL, K. *Stiffness of Joints; Its Prevention and Treatment.*
10. PETTENKOFER, W. *Treatment of Post-operative Paralysis of the Intestines.*
11. MENDLER, A. *A Case of Compression in Myelitis Cured by Operation.*
12. SCHÜLE. *Treatment of Furunculosis.*
13. HEDDÄUS, *Treatment of Large Carbuncle by Circumcision.*
14. ROSENMEYER, L. *Use of Neosalvarsan Locally in the Eye.*
15. GÖHRING, B. *From the Activity of the Municipal Physician.*
16. KIENBÖCK, R. *Roentgen-therapy in the Clinic, the Hospital and the Laboratory.*
17. KORFF-PETERSEN AND BRINKMANN, H. *The Epiphany-reaction of Weichardt.*

1. Grober presents important experimental evidences on the swelling of colloids. His work strengthens the hypothesis that muscular contraction is a chemical process like the swelling of colloids.

2. The writer emphasizes the points that diagnosis should be sure before doing nephrectomy for tuberculosis and that the results are much better with early operation. He believes that operation is the method of choice but that it should be followed by the usual treatment for tuberculosis because it is seldom possible to remove all foci of disease. Practitioners are urged to clear up the diagnosis promptly in all doubtful cases. [G. C. S.]

No. 46. NOVEMBER 12, 1912.

1. *FAUST, E. S. *Combined Effects of Some Alkaloids of Opium.*
2. v. PETERSEN, O. *Salvarsan in Treatment for Aniotol Sore.*
3. KANTOROWICZ, A. *A New Method of Representing and Recording the Effect of Proteolytic Ferments.*
4. MAYER, A. *Anatomically Demonstrable Differences in the Resistance of the Abdominal-cavity to Infection.*
5. HOFFMANN, A. *Rontgenological Studies of Stomach and Intestines.*
6. KEHRER, F. A. *Surgery of Sterility.*
7. CHIASI, O. M. *Preliminary Reports of Transplantation of Marrow.*
8. HÖRRMANN, A. *Need of Prophylactic Appendectomy in Gynecological Operations and the Question of "Appendix-carcinoma."*
9. MEYER, A. W. *Plastic of the Finger.*
10. HOFBAUER, J. *Plastic Restoration of the Vagina.*
11. KAISER. *Acute Amblyopia from Methyl Alcohol.*
12. KREISS, P. *A Case of Lateral Cleft of the Chest with Aplasia of the M. pectorales, etc.*
13. PORTIG. *A Rare Appearance of the Skin in a Case of Renal Insufficiency.*

1. (Faust's work on the alkaloids of opium, if confirmed, will be of great importance to practitioners.)

He tested on humans a variety of mixtures of the alkaloids, and of these two proved of greater value than the rest. These have been prepared for further trial under the names of "Landonon I" and "Landonon II." He concludes that the alkaloids are not all needed to produce the effects of opium, that morphine is the only essential, that Pantopon contains useless substances, that the effect of the morphine is generally increased by some of the other alkaloids, that the depressing effect of morphine on the respiratory centre may be counteracted by Thebain (an alkaloid of opium) which stimulates it. [G. C. S.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 46. NOVEMBER 14, 1912.

1. *STEIN, R. O. *The Specific Treatment of Deep Trichophytosis.*
2. ARZT, L., AND KERL, W. *The Value of the Freund-Kaminer Reaction.*
3. FREUND, E., AND KAMINER, G. *Conclusion to the Above.*
4. SUGI, K. *A Case of Papular Syphilitic Meningitis.*
5. BECK, O., AND BIACH, P. *Nystagmus in Fever.*
6. ABELS, H. *Affections of the Urinary Bladder in Little Girls from Undiscovered Foreign Bodies.*
7. BIRNBACHER, R. *Case Communications from the General Free Hospital in Scheibbs.*

1. Stein believes that deep trichophytoses are best treated by intradermal injections of trichophytin, superficial forms with trichophytin salve. [R. M. G.]

No. 47. NOVEMBER 21, 1912.

1. VAN STOCKUM, W. J. *The Therapeutic Action in Tuberculosis of Spleen Previously Treated with Roentgen Rays.*
2. BASS, R., AND WIECHOWSKI, W. *The Purin Base Content of the Blood and Its Estimation.*
3. ROTH, N. *Meal Days in Diabetes.*
4. BOSSI, L. M. *My Views on the Reflex Psychopathies and the Need of Amelioration of Insane Status.*
5. v. JANREGG, W. *Observations on the Preceding Essay.*
6. BEER, H. *Difficulties in Nursing and Their Treatment.*

No. 48. NOVEMBER 28, 1912.

1. FRANKL, O. *A Suggestion for Furthering Early Operation in Cancer of the Womb.*
2. SPRINZELS, H. *Parotid Enlargement in the Obese.*
3. ACS-NAGY, S. *Sputum Albumin and Its Practical Value in Diagnosis in Diseases of the Respiratory Organs, Especially in Pulmonary Tuberculosis.*
4. v. AICHBERGEN, A. K. *The Goitre Houses in the Municipality of Sirnitz in Kärnten.*
5. SCHMIDT, G. *The Question of Infected Gunshot Wounds.*

ARCHIV. FÜR KLINISCHE CHIRURGIE.

VOL. 99. PART 3.

27. *KELLING, G. *Technic of Stomach Resection in Carcinoma.*
28. *GROVES, E. W. H. *Operative Treatment of Fractures; the Use of Intramedullary Pegs.*
29. ROSANOW, W. N. *Lymphangioplastics in Elephantiasis.*
30. KÖNIG, S. *Concerning Fragments Broken Off the Anterior and Posterior Aspects of the Distal End of the Tibia; Fissure-fractures.*
31. PAGE, E. *The Operative Treatment of Ankylosis of the Knee.*
32. SUMITA, M. *Experimental Work on the Operative Mobilization of Ankylosed Joints.*
33. PÓLYA, E. *Recurrences after the Radical Cure of Inguinal Hernia.*

27. Kelling considers important in resection of the stomach for cancer the following points: 1. The chief danger is from infection. 2. No unclean suture-material should be left in the stomach wall. 3. The lymphglands are valuable in filtering out virulent bacteria, hence should be left when possible. 4. An entero-enterostomy, as well as gastro-enterostomy, improves gastric function and reduces danger that duodenal stitches will tear out. 5. In much weakened cases, gastro-duodenostomy is indicated.

28. Ernest W. Hey Groves of Bristol, England, writes in favor of the use of pegs or bolts in securing union of fractures of the long bones. The pegs may be made of steel, aluminum or magnesium. As the last metal is absorbable in the course of weeks, it has some advantages. The pegs are cylindrical with pointed ends; Groves uses thirteen sizes. With an auger corresponding in diameter to the peg he wishes to use, he bores out the medullary cavity in either fragment. The peg is then fitted in by an ingenious device, and the pull of the muscles holds the ends of the bone together.

Mechanically, this method seems more certain of producing union than does the method of Lane; the difficulty must lie in the introduction and fitting of the peg. Groves has used it for two years with success. [G. G. S.]

REVUE DE CHIRURGIE.

NOVEMBER, 1912.

1. *LAPOINTE, A. *Pathogenesis and Treatment of the Traumatic Myosteomata.*
2. GOUGEROT, H., AND LÉVI-FRANKEL, G. *Sporotrichotic Synovitis.*
3. VIALLET. *Some Data and Remarks on the Third Tibial Fragment in Malleolar Fractures.*

1. Lapointe reports a case of traumatic myosteoma and collects from the literature 120 similar cases. From a comparative study of these he concludes that the common theory of myositis ossificans is applicable also to adherent or continuous myosteomata. The periosteal theory is valid only for certain traumatic ossifications of sub-periosteal localization. The prophylaxis of myosteomata is very uncertain. Extirpation six or eight weeks after the injury is the operation of choice, provided the myositis ossificans is not complicated with ossifying periarthritis. When the two processes develop simultaneously, extirpation of the myosteoma alone is insufficient and useless, and orthopedic resection may be considered. In performing extirpation, one should respect as much as possible the muscular tissue surrounding the myosteoma, and if the latter is adherent to bone, avoid denuding it of periosteum. [R. M. G.]

IL POLICLINICO.

NOVEMBER, 1912.

SURGICAL SECTION.

1. PEREZ, G. *The Functional Importance of the Lymph Nodes and Some Properties of Extracts of Tuberculous Nodes. (Preliminary Note.)*
2. *LEOTTA, N. *Obliteration of the Mesenteric Vessels. (To be continued.)*
3. MARINACCI, S. *Proposition for the Treatment of the Intestine, Deprived of Its Mesentery, with Invagination.*
4. CHIASSERINI, A. *Contribution to the Experimental Surgery of the Hypophysis.*

2. Leotta reports a series of 20 experiments on dogs on ligation of the mesenteric arteries, and a similar series of 12 experiments on ligation of the mesenteric veins. He purposes in a later paper to correlate these researches with clinical observations of thrombosis and embolism of the mesenteric vessels. [R. M. G.]

Miscellany.

RESOLUTIONS ON THE DEATH OF DR. ELIZABETH C. KELLER.

PASSED BY THE MEDICAL STAFF OF THE NEW ENGLAND HOSPITAL FOR WOMEN AND CHILDREN, DEC. 5, 1912.

Resolved, That, in the death of Dr. Keller the staff of the New England Hospital for Women and Children realizes it has lost one of its pioneer surgeons.

Resolved, That, while we sympathize with her family in their loss, we can but rejoice that, after the long and trying illness so courageously endured, she has passed into her well-earned rest.

Resolved, That a copy of these resolutions be sent to the Directors of the New England Hospital and to the family and that they be published in the BOSTON MEDICAL AND SURGICAL JOURNAL.

Correspondence.

"MECHANICS OF PERTUSSIS."

Mr. Editor: Your editorial references to the work of Mallory and Hornor upon "Pertussis" and more especially where you suggest, "Its ultimate demonstration to determine the true etiology and explain the exact mechanical lesion of pertussis," together with your statement that "disturbed ciliary action" (M. and H.) explains the frequent liability to bronchopneumonia as a complication and probably offers a mechanical explanation of the whoop, a symptom due to spasm, lead me to write as follows:

My personal experience with cases of pertussis with a fairly extensive study of mechanics and that of practical acoustics warrant the answering of any queries likely to arise in this connection.

First and foremost it can be stated positively that pertussis is an air-borne, infectious disease, the habitat of which, in common with all 'distempers' must, of necessity, be the first (or nasopharyngeal) tonsil. It is hardly possible in a short communication to set forth the mechanical conditions which obtain in a rhino-pharynx during the development of a typical case of pertussis. However, it will be easy to show how far afield your quoted observers must be when they neglect this region altogether and fail to consider the action of soluble toxines upon the sympathetic nerve.

It is immaterial as to whether we locate the ferment-producing "plant" in the naso-pharynx or in some organ of the body, provided we can account readily for a constant supply of "yeast" and suitable "pabulum" for the process of fermentation which gives rise to the soluble toxines.

As it is now known from practical experimentation that the first tonsil is admirably suited for these purposes and more especially when its own tissues are increased by hyperplasia it is better to assume that the usual "habitat" of the pertussis germs is also the dépôt for these toxines. It is not necessary to refer to the manner of self-infection, direct or indirect, nor to explain how germs may grow very rapidly upon suitable "soils" such as are readily supplied in the protected, moist, warm rhino-pharynx. Soluble toxines, or if you please, active and inactive bacilli, pass into the lymph vessels and filter through the lymphatic glands to reach distant organs or tissues. Unless the amount is considerable or the various secretory glands (thyroid, supra-renal, etc.) send out "anti"-toxins the nervous systems are involved and the numerous symptoms of fever, anorexia, asthenia together with local signs of infection develop. This general description of what takes place applies to so many lesions from air-borne infections that it is given more fully than would be needed if properly understood.

In many cases of influenza bronchitis, the peculiar symptom-reflex of pertussis, has been observed and this type of "cough" may continue for years. An explanation of its mechanical production is readily understood, if one retains the memory of anatomical peculiarities of the nerves supplying the lungs. Gray says that the branches of the pneumo-gastric nerve in the thorax form with branches from the nervus sympatheticus two plexuses (anterior and posterior), which supply the air cells of the lungs. The "whoop" of pertussis comprises a complete "orgasm," which may readily be observed to begin with a sharp, quick inspiration due to a reflex excitation of the respiratory centre. An "asthmatic" condition supervenes, cyanosis develops, due to a more or less complete "spasm" of the muscles of the bronchioles preventing air from entering the cells and accompanied with "blushing" of the lungs from lack of vaso-motor control. Next comes a relaxation of the arterial tension. Mucus is at this moment secreted; air enters the contracted glottis and the "orgasm" ends. This latter act of sudden inspiration causes the noise which goes by the name of "whoop." The combined acts of expectorating and vomiting is induced through the terminal fibres of the pneumogastric by their compression from the infinite number of muscles contracting simultaneously around the small bronchi and in the bronchioles.

When studying any disease among all of those caused by toxines from bacilli it is as necessary to differentiate as it is in agricultural pursuits to select seeds and grains for various purposes. "One does not gather grapes from thorns or figs from thistles," so when "pneumonia" develops in the course of "pertussis" one would find the pneumococcus first in the nose (rhino-pharynx), then possibly "entangled in cilia" in the lungs. But the "germs" of pertussis produce "whooping-cough," and pneumonia, tuberculosis and even influenza must be introduced primarily through the first tonsil.

There is so much left to learn concerning the questions provoked by the discussion of the causes of infectious disease that I do not introduce any remarks referring directly to the "complications from mixed infections," but study of these is likely to develop in connection with "serum-therapy" although this latter together with "antitoxinization" is still more or less empiric.

Yours truly,

EDMUND D. SPEAR, M.D.

November 25, 1912.

TUBERCULOUS INFECTION IN CHILDHOOD.

BOSTON, Dec. 2, 1912.

Mr Editor: For the purpose of arousing interest and discussion I wish to call to the attention of your readers what I believe to be a most important factor in the general tuberculosis problem and that is infection in childhood and its relation to pulmonary tuberculosis in adults. It is undoubtedly true that the glandular system of the child is most active in taking care of the infection. It is also true that an infected child may remain fairly well during school life but with the advent of the adolescent period and the lowering of the resistant forces incident to daily labor in factories, mills and stores the fight becomes unequal and the gland inflamed and softened can no longer hold the bacillus in check. What happens now? The

blood stream carries the freed bacilli to the lungs, the place of all others that the bacillus has selected for its parasitic existence and pulmonary tuberculosis is the result. Assuming the foregoing to be true measures must be taken, first to ascertain the number of children infected; and second, if the number is as large as I suspect, to adopt some adequate program for their care and cure. At this point the diagnosis becomes important and the adoption of a standard upon which capable men can agree. In suggesting a standard I wish to disregard as a class those children showing active signs in the lung. Given a child in poor general condition with a history of family contact, and remembering besides the frequency of bovine infection from milk, with perhaps a slight elevation of temperature, enlarged glands in the neck, increased voice sounds, prolonged expiration note and slight dulness on percussion at one or both apices, increased area of dulness over the upper sternum, and increased whispered voice over four or five upper dorsal vertebrae or along the para-vertebral lines, the so-called Despine's Sign, this spells infection with the tubercle bacillus and such a child demands intelligent medical and hygienic care in home and school. I feel that the diagnosis is not difficult to make and I urge especially general practitioners and school physicians to study these cases and to call to their aid the x-ray picture whenever possible. Hoping that these suggestions may be a stimulation for the search for truth in this matter and believing that the case of the tuberculous child will mark the next great advance in the anti-tuberculosis propaganda, I remain,

Truly yours,

WALTER C. BAILEY, M.D.

A TOUR OF STUDY FOR PHYSICIANS.

Mr. Editor: The visit by a party of German physicians to the recent International Congress on Hygiene and Demography has proven that well-managed Travel Study party of physicians can make a trip through a foreign country in a far more pleasant and profitable manner, and at less expense, than can be done by travelling alone. Clinics can be arranged in advance, lectures prepared and visits made to the best hospitals and health resorts, with the assurance of a hearty welcome from the leading medical men of the localities visited. For those unable to speak the languages of the countries on the Continent, this disadvantage is reduced to a minimum and the benefits of the trip correspondingly increased by traveling with such a party.

The coming International Medical Congress, London, Aug. 6-12, 1913, gives a splendid opportunity for organizing an American Tour of this sort and plans are now ready for a Physicians' Travel Study Tour, leaving New York July 3 for the most important capitals and health resorts on the European Continent: Paris, Munich, Carlsbad-Marienbad, Dresden, Berlin, Nauheim, Wiesbaden, Cologne, Brussels, the Hague, Amsterdam, etc., ending with the week of the Congress in London.

The plan of this tour has been seen and endorsed by Drs. A. Jacobi, T. C. Janeway, Ch. G. Kerley, O. G. T. Kiliani, L. R. Williams, Wisner R. Townsend and others. Physicians interested in such a trip should write for further and more detailed information to

RICHARD KOVÁCS, M.D.,
236 East 69th Street, New York City.

SOCIETY NOTICE.

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—There will be a meeting of the New England Hospital Medical Society, Thursday, Dec. 19, 1912, at 7.30 p. m., in the Kensington Building, Boylston Street.

Paper: "Mental Symptoms Associated with Renal Insufficiency," Dr. Mary L. Neff, State Board of Insanity. Refreshments after the meeting.

MARGARET L. NOYES, *Secretary.*

RECENT DEATHS.

DR. WILLIAM MARSTON BATES, of Salem, Mass., who died on Dec. 6 at Danvers, Mass., was born in Petersburg, N. Y., on June 12, 1815. After receiving his preliminary education in the schools of Waterville, Me., he began the practise of dentistry in 1852, and in 1862 settled at Salem. He is survived by one daughter and by several grand-children.

DR. DANIEL STANISLAUS HARKINS, who died on Dec. 8 at Dorchester, Mass., was born in East Boston on May 13, 1864. In 1884 he received the degree of A.B. from Montreal University, and in 1888 that of M.D. from the Harvard Medical School. After practising his profession for a year, he was appointed assistant resident physician at Long Island and at Rainsford Island, and in 1889 became quarantine physician for the port of Boston, in which position he served until 1893, when he resumed his private practise. He was a member of the American Medical Association, and a Fellow of The Massachusetts Medical Society. He is survived by his widow and by five children.

DR. MAURICE FRANCIS SULLIVAN, of Brooklyn, N. Y., a graduate of Dartmouth in 1887, died on November 29, at the age of forty-eight years.

DR. JOHN R. MERRILL, of Paterson, N. J., died recently at Pasadena, Cal., where he had gone for his health. He was fifty years of age, and was graduated from the College of Physicians and Surgeons, New York, in 1886.

DR. CHARLES HENRY THOMPSON, of Belmar, Monmouth County, N. J., was a graduate of the College of Physicians and Surgeons, New York, in 1868, died suddenly on December 3. Dr. Thompson was mayor of Belmar in 1891 and '92.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, DEC. 7, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	18	* 5
Chicago	—	—	Waltham	7	2
Philadelphia	—	—	Brookline	6	—
St. Louis	—	—	Chicopee	4	1
Baltimore	—	—	Gloucester	5	2
Cleveland	—	—	Medford	6	—
Buffalo	—	—	North Adams	5	—
Pittsburgh	—	—	Northampton	7	1
Cincinnati	—	—	Beverly	3	—
Milwaukee	—	—	Revere	1	1
Washington	—	—	Leominster	4	—
Providence	—	—	Attleboro	5	1
Boston	242	65	Westfield	2	1
Worcester	44	6	Peabody	—	—
Fall River	29	6	Melrose	6	2
Lowell	34	11	Woburn	4	0
Cambridge	27	6	Newburyport	8	—
New Bedford	27	6	Gardner	6	1
Lynn	25	3	Marlboro	—	—
Springfield	14	3	Clinton	1	—
Lawrence	—	—	Milford	—	—
Somerville	20	4	Adams	—	—
Holyoke	20	6	Framingham	—	1
Brockton	8	1	Weymouth	—	—
Malden	12	2	Watertown	4	2
Haverhill	13	1	Southbridge	2	0
Salem	11	2	Plymouth	—	—
Newton	6	—	Webster	6	2
Fitchburg	9	1	Methuen	—	—
Taunton	13	1	Wakefield	2	—
Everett	9	3	Arlington	5	2
Quincy	—	—	Greenfield	3	—
Chelsea	—	—	Winthrop	2	—

Memorial.

MEMORIALS TO MAURICE HOWE RICHARDSON, M.D.*

I.

BY R. H. FITZ, M.D., BOSTON.

THE progress of my intimacy with Dr. Richardson was so gradual that I have no distinct memory of the time when first I began to regard him as one of the nearest of my friends. I have heard him on various occasions, for it pleased him to tell the story in my presence, narrate his recollection of our first co-operation. It was in the early years of his student-life, when his class met at the Massachusetts General Hospital to observe the post-mortem examination of a patient who had died with obscure symptoms of a disease which had proven rapidly fatal. As was the custom at that day volunteers were offered the opportunity of making the examination under the eye and direction of the teacher. The young and enthusiastic Richardson was prompt in offering his services and I have no doubt was successful in his undertaking. In summing up the history of the patient and in contrasting it with the results of the post-mortem examination, the conclusion was reached that the case was to be regarded probably as one of hemorrhagic small-pox. Those present were advised to take the customary precautions to avoid transferring the contagium of this disease.

Years afterward, when Dr. Richardson first told me that he was the student who had performed the autopsy, he described his state of mind at the time and his anxiety during the subsequent days lest he should have become infected from the closeness of his contact with the corpse. Fortunately, he and most of those present escaped from any more serious results of the exposure.

I feel sure that I was first attracted to Dr. Richardson through his skill in the surgery of the abdomen. Our mutual interest in disease of the abdominal organs led each of us to follow closely the experience of the other and whenever the occasion arose I was accustomed to speak of him as particularly qualified in the diagnosis and surgical treatment of this group of affections. An acquaintance purely professional at the outset, soon became under the influence of his lovable personal characteristics an intimate friendship, never interrupted by any disagreements and only ended when the one was taken and the other left.

We very soon found a common interest in our love of nature and fondness of the open air. Skill in the use of the line, rod and gun and the yearly need of a real vacation led him to seek the more remote regions, where fish and game might be found in sufficient numbers to give additional zest to his out-door life. He thoroughly enjoyed fishing even when he caught no fish and he often insisted on carrying a rifle or shot-gun when tramping through the woods or climbing a mountain, although it was his usual experience to return at night without having been able to draw a bead on deer, duck or partridge. His enthusiastic nature placed him always in a state of expectation, although our party was usually so noisy on its way through the woods that ample warning of our coming was given to beast and bird.

For many years we sojourned in September in the heart of the Adirondack Mountains, at the foot of Mount McIntire and within easy walking distance of the top of Mount Marcy. We were in a wilderness of forest and mountain, interspersed with lake and stream, and nearly a day's journey from the railroad. But we were in a community of kindred spirits returning year after year to revisit the familiar scenes. We were provided with all the comforts and many of the luxuries of living to such an extent that Dr. Richardson frequently expressed a longing for a rougher life, where one might struggle for existence with no more outfit than the pioneer backwoodsman might have carried. Nevertheless, he looked forward with the greatest longing to these annual outings from which he returned much refreshed and often recalled with the liveliest pleasure the events which had occurred. It was here that he shot his first and I believe his only deer, which seemed to him as he stalked his game, as large as a cow, but which proved to be of the size of a small calf. He had no real fondness for deer-shooting although he thoroughly enjoyed seeing the creatures in their native haunts. On one occasion he came within easy gun-shot of a large buck with many-pronged antlers; hunter and game were equally surprised. The attempt to discharge the rifle at half-cock was followed by the escape of the deer, a result which Dr. Richardson did not regret. He had less compassion in the pursuit of smaller game and in the later years of his life found much satisfaction in fishing, especially from a boat, in which he would sit by the hour in his endeavor to entice bass, trout or pickerel to take the hook. It was a question whether he enjoyed more the capture of many fish in salt water or the few and more wary fish of the Adirondack lakes. Many a patient and friend have profited from his skill as fisherman and his pleasure in disposing of his spoil added greatly to the joy of capture.

Until within the last few years his greatest delight in the September vacation came from tramping through the forest, especially in mountain-climbing. Although he gradually increased in weight, as the years lapsed, his muscles were so powerful, his interest so keen and his courage so great that he was able to undertake successfully the trips which were less laborious to the other members of the party. For some time he suffered actual pain from flat-foot but never allowed his own discomfort to interfere with any plans for a daily walk. If the way were

* Read at a meeting of The Boston Society for Medical Improvement, Nov. 25, 1912.

long he asked only to be allowed to set his own pace and that the others should not feel called upon to regulate their steps by his. It was a pleasure for him to explore unfrequented country and to promote the laying out of new trails. Two of the most satisfactory trips to be made from the Tahawus Club are due to his interest and energy. The longer trail was started from the two ends and its construction involved several daily trips from head-quarters until a memorable night in the woods, in a specially constructed log-camp, preceded the day's work which was to unify the path.

Dr. Richardson greatly enjoyed the companionship of the guides, one of whom was always his especial follower and all of whom were eager to anticipate his wishes and spare him any inconvenience. It was second nature for him to interest himself in their affairs, to learn from them the results of their experience and to teach them what might be novel. He was fond of contrasting what his boatman on the Cape could do with a rope and what his Adirondack guide could accomplish with an axe. He was especially pleased to show the woodsman that water could be boiled in a piece of birch-bark and that a serviceable cup could be made of the same material. The preparation of the luncheon usually entertained him and he liked to share in the toasting of bread, the broiling of bacon, and above all to show the guides how to make a fish-chowder. On one occasion a guide who had cut his leg badly with an axe, while on the mountain-side miles away from the Club-house, was enabled to appreciate Dr. Richardson's surgical skill. With the assistance of Dr. Brewer of New York a successful aseptic operation was performed at once with needle and thread intended for rents in garments, the dressings and bandages being improvised from articles of wearing apparel. The patient was enabled to return immediately on foot and rapidly recovered from his injury without any complication.

Dr. Richardson's fondness for nature was equally apparent at Eastham on Cape Cod, where he spent many a restful day when relief was sought from the arduous labors which filled his busy life. Attracted to this region at first by the love of sport and especially by the opportunities afforded for the shooting of wild-fowl, the charm of the scenery, the purity of the air, the freedom from care later became stronger inducements. It was my privilege to be his guest, at times, during the winter or early spring when a walk of miles over the downs or along the beach would invigorate through exercise and would interest from the strangeness of the surroundings. Dr. Richardson then became a discoverer, and would seek for the flint-chips and arrow-heads of a bygone race, or the rare fish and shells exposed at low tide, or the flotsam and jetsam of many a wreck lying at the bottom of the ocean or cast ashore on the perilous sands of Cape Cod. At times a trip on snow-shoes would afford variety and again we might be storm-bound by a winter's gale or a heavy fall of snow. Then his anxiety for our welfare would lead him to make repeated observations during the night from fear that the sea might break through the beach-bank and wash away our shelter. By way of contrast there were winter days like those of an Indian Summer and in the spring the search for the spoils of the sea would yield to the hunt for mayflowers which early made their appearance on the sunny slopes back of the beach. Among Dr. Richardson's possessions not far away was Billingsgate island, an isolated spot in Massachusetts Bay the ownership of which he shared with the United States which reserved a portion for the site of a light house. It gave him great satisfaction to speak of his island which served for an occasional excursion for pleasure or for the pursuit of wild-fowl. It comprised a few acres only and the sea made such inroads that it became necessary from time to time to change the position of the hut which served to shelter him and his guests. It was a lonesome spot but a wonderful view-point of gorgeous sunsets and, at low tide, of miles of sand-flats, dotted with pools of water with ever changing variations of light and shade. Walks across these flats revealed the bottom of the sea, a mass of clean sand dotted with shells, and sprinkled with living crustacea but largely free from rocks and sea-weed. The surrounding waters abounded in scallops and cod-fish and the fleet of small boats dredging for the former gave life to the picture which easily became monotonous.

I recall to memory two journeys made with Dr. Richardson, the one, several years ago, to Virginia and the other only a few months ago to the Caribbean Sea. Dr. George Ben Johnston of Richmond, for many years one of Dr. Richardson's nearest friends, had planned an excursion for us down the James River into colonial Virginia, ending with a trip into the country around the University of Virginia. Through his interest and acquaintance every opportunity was offered of visiting the historical colonial mansions and the more sumptuous residences of the period before the Civil War. Dr. Richardson's interest in the war was especially keen and among Dr. Johnston's friends who accompanied us down the James River, and some whom we met elsewhere, were Confederate veterans who had seen service in the country through which we passed and had held prominent positions in the Confederate Army. The genial, open-hearted, free-handed generosity of our Southern friends was so wholly in harmony with Dr. Richardson's nature that he soon found himself thoroughly at home with them. Their experiences and descriptions added to the interest of the trip and Dr. Richardson's personal charm soon made him not only a welcome companion at the time but a much besought guest for the future.

Our last journey together was made in April

when we visited the Panama Canal, Cuba and Jamaica and were especially fortunate in being permitted to see the important features of the Canal under the most favorable conditions. One of our fellow passengers was Col. W. R. Livermore, formerly of the Engineer Corps of the United States Army, whose training, acquaintance and study enabled us to see and understand many of the features in the construction of the canal which otherwise we should not have appreciated. The sea-voyage was without a flaw and restful to all, although Dr. Richardson was always the most alert and was the first to notice anything unusual in the surroundings. Having previously made a voyage to the West Indies he was ready to call to our attention the Gulf Stream, the Sargasso weed, the flying fish and the Portuguese men-of-war. He would be the first to detect a vessel on the horizon and made frequent use of the field glass which was his constant companion. He was in excellent spirits and found abundant opportunity for serious conversation in Col. Livermore, whose knowledge of astronomy, of military science of ethnology, of physics was a constant source of admiration to Dr. Richardson who was ever fond of discussing these subjects with those who shared his interest in them. Nevertheless, he found time enough to extend his acquaintance and to complete a medical paper which he had agreed to present, immediately after his return, at a meeting in the South of one of the many associations and societies whose invitations he found it hard to decline.

In recalling the various circumstances under which I have seen Dr. Richardson so intimately there is always in the foreground the picture of a large framed, whole-souled man. He had an attractive personality in virtue of his looks, his geniality and obliging disposition, his unusual intelligence, cultivated mind, accurate knowledge, broad interests, strength of character and reliableness. To his personal charm was added an almost magnetic attraction which concentrated attention upon him in the lecture-room, the operating-theatre and in social gatherings. He excelled under the most various conditions whether as sportsman, musician, surgeon, teacher, writer, companion or host.

I have already referred to his love of sport which was not to be gratified by the quantity of game to be obtained but by the opportunity offered for living in the open, with freedom from care and anxiety and with abundant exercise in the midst of beautiful and varied scenery. It furnished a means of prolonging his life and of enabling him to retain his physical and mental vigor and to return refreshed and better prepared for his daily work. His love of music was a never ending source of delight to him and to his friends. In his earlier days, as a member of an orchestra of amateurs, he acquired skill, which never left him, in reading music and in playing on various instruments. He was equally at home with a melodeon and with a grand piano and seemingly obtained as much pleasure with the one as with the other. I have seen him on a Sunday night seated at the former instrument serving as accompanist to a surrounding group of devotional singers. On another occasion, after a dinner he had given to Professor Mikulicz, the two distinguished surgeons sat at the piano and took part in a duet in which a Beethoven Symphony was the prominent feature. None of his patients will ever forget their pleasure in listening to his piano-playing at Corey Hill at the end of his afternoon visit. Some of them may have known that the instrument was a gift to the hospital from a former patient who had derived much comfort and benefit from listening to his playing on the hired piano which had earlier been installed.

Dr. Richardson was a great clinical surgeon and widely known as such. He was without question the leading operating surgeon of New England and his practice at times, extended into distant parts of the country. He was the favorite surgical consultant of hundreds of physicians who knew him personally and by reputation, and in the course of time his fame was well established among the thousands who had been his patients or who had come in contact with them. Each patient was made to feel that he or she was the especial object of his solicitude and that every possible effort would be made to secure a successful result. The thoroughness of his examination, the wisdom of his opinion, the skill of his treatment, the tender sympathy and cheery encouragement before and after the operation endeared him to his patients. These qualities, his evident sense of responsibility and honest bearing satisfied their nearest friends even if it became necessary for him to inform them that the disease was beyond surgical relief. To establish this relation Dr. Richardson was especially gifted by nature and was untiring in his efforts to make himself worthy. His steadiness of hand permitted him to thread the smallest needle and to write the Lord's Prayer within the boundaries of a ten-cent piece. His knowledge and large experience, his appreciation of the responsibility involved made him a careful and cautious diagnostician. His caution was so great, based upon the repeated observation of the difficulties to be encountered, that he often preferred to hold his opinion in reserve, realizing that many operations are of necessity exploratory from the frequency of manifold causes for similar symptoms. He recognized that familiarity with pathological anatomy was an important feature in the equipment of the surgeon and always regretted that he lacked thoroughness of training in this department of medicine. He endeavored, however, to make up for his deficiency in this respect by utilizing the services of experts in case of need. It was gross pathological anatomy which appealed to him, in particular, and he was inclined to place more dependence upon what he saw and felt during an operation than upon what was

revealed through the microscope, especially if the evidence furnished by the latter were negative. He knew that errors of interpretation were common to all observers and that the minute examination of a narrow field might throw but little light on processes taking place at remote areas. Nevertheless, he placed great confidence in the reports from Dr. Whitney made during the course of the operation at the Massachusetts General Hospital and in virtue of which he might be led to modify the extent of his operation. In his private practice, also, when the circumstances permitted or demanded such assistance, Dr. Whitney's aid was often sought.

As his practice became exclusively surgical it was his custom to employ an artist to make drawings of his more important operations and of the morbid specimens removed. It was his intention at the time to prepare a text book on clinical and operative surgery and he accumulated many drawings intended as illustrations for this work. Despite the repeated solicitations of the publishers and the prickings of his own conscience, for he looked upon the task as a duty, the demand for his services in practice and his unwillingness to restrict the number of his operations resulted in an indefinite postponement of this literary task. The material which he collected was composed not only of the numerous illustrations, plain and colored, but also of the reports from the pathologist, bacteriologist and chemist. These added to the histories of the patients taken by himself in shorthand or by his assistants were carefully and systematically arranged, catalogued and indexed. Hence it was possible for him, with very little expenditure of time, to place his hand on quantities of original matter which he could utilize in the preparation of surgical papers or in discussions. He attached great importance to his own histories, which he made unusually comprehensive through his facility in shorthand writing, often reproducing the very words of the patient. This custom proved of great practical value to him in the earlier days of his surgical career when his services were much in demand by lawyers as expert in medico-legal cases, especially those of tort. For a number of years he was the choice of the leading lawyers, from the thoroughness of his examinations, the soundness of his opinions, and his satisfactory presentation of them. The jury always was agreeably impressed, but the occasions were not a few when he was personally complimented by the judge and even by the counsel in opposition. He enjoyed this work as an intellectual exercise but was obliged to refuse the many applications for his services as the demands for his skill as practitioner became more urgent. He made an exception, however, when suits for damages were brought against his medical and surgical colleagues and repeatedly was enabled to testify in their favor.

In conducting an operation he was equally at home in case of an emergency or when the procedure had carefully been planned. In an obscure or difficult undertaking he was inclined to express his anxiety as to the result and remained in a state of suspense until the indications had become more favorable. During the operation he was in a condition of extreme tension, fearless, quick, accurate, watchful and alert at every step. His face and forehead soon became bathed in perspiration and it was the duty of a nurse to prevent it from interfering with his vision. He was impatient if his orders were not immediately followed, abrupt and sententious in his criticisms, apologetic afterwards if he had given offense. Assistants and nurses were alike devoted and all were treated alike.

Such was Dr. Richardson's surgical life as it appeared to a friend who is not a surgeon. I knew there was no limit to the amount of work he was willing to undertake. His bags were packed, assistants and nurses subject to his call, and the large automobile was a special train always in readiness, in the middle of the night or during the day. The long trips by automobile were, in a way, restful to him, although he usually sat by the chauffeur and assumed more or less responsibility by watching the road and by blowing the horn to announce his coming. His work tended to produce exhaustion of the nervous system and his tire was due to this and not to muscular weakness, nor did his brain give evidence of wear. Although often advised by his friends that his practice was too severe and continuous to be persisted in so strenuously, that he should put more work in the hands of his assistants and spare his strength for the more serious and important cases, Dr. Richardson was unwilling to admit that there was any lessening of his powers or that any precautions were to be taken. It was not till two years before his death that he received any definite warning of physical deterioration. Then a mild and brief attack of aphasia, with a slight and limited modification of motion and sensation notified him that the future was uncertain. Nevertheless, he spared himself but little in his private work, although during the year before his death he was willing to admit fatigue at the end of the day, and that rest at home was more helpful than pleasure or excitement elsewhere.

Dr. Richardson remained a teacher in medicine throughout his professional life. While a student in the medical school he attained especial distinction in anatomy and soon after his graduation was asked to assist in the preparation of dissections to illustrate the lectures of Oliver Wendell Holmes. He soon became Assistant in Anatomy, Demonstrator of Anatomy and Assistant Professor of Anatomy and used his various opportunities to become a master of the subject as then understood. His chief interest lay in regional and applied anatomy and his demonstrative lectures on these subjects became one of the most popular courses in the medical school.

He loved to demonstrate and his facility in

drawing with each hand simultaneously and his free use of colored crayons enabled him to define accurately the points he wished to make clear. As his surgical experience enlarged he was appointed also Assistant in Surgery and he thus was enabled to dwell upon the importance of anatomy in surgery and eventually he was transferred directly from the Assistant Professorship of Anatomy to that of Clinical Surgery. He studied and taught anatomy as the preparation for his life's career in surgery and always held that a thorough knowledge of anatomy was most essential to the successful practice of surgery and regretted any attempt to underrate its importance. In teaching the latter subject he liked to combine the diagnosis and operation that the evidence upon which the diagnosis was based might at once be controlled. He preferred to teach rather by example than by precept knowing the uncertain outcome of dogmatic statements. He enjoyed a large audience and was thoroughly at home on the public operating-days when less opportunity was offered for discussing symptoms than for showing what was to be done. Perhaps his best teaching was before small classes who would follow him through the wards, and assemble near at hand in the operating-room. He enjoyed, also, the large, mixed audiences which attended his lectures to the public given at the Medical School. It was not unusual for the room to be filled to overflowing and it was a source of regret to him to think that any should be turned away who had taken the trouble to visit the school. It gave him great pleasure to invite to his house each year the students then under his instruction, to talk to them collectively, to ask his colleagues to share in these talks and to spend the rest of the evening socially in an informal manner. These receptions were a most successful means of bringing the students into close relation with their instructors and were wholly gratifying to all present. Although he had been advised that it was prudent for him to give up a part of his teaching both at the medical school and at the hospital and his associates were ever ready to lighten his labors, it is a consolation to know that he was able to remain Professor of Surgery in the Medical School and surgeon to the Hospital until the end, and died as he would have wished, while asleep in bed without suffering or anticipation, at the end of the day's work, expectant of the morrow and hopeful of the future. He lived in his work, and inability to perform it through mental or bodily incapacity would have been for him a living death.

Dr. Richardson was a prolific writer of essays and addresses, the preparation of which he thoroughly enjoyed. He had abundant material, easily utilized, he had something to say authoritatively and his invitations were numerous from various parts of the country. He wrote easily and carefully, having a talent for construction and a fondness for grammar. As is well known he spent a year in teaching school, immediately after being graduated from college, and although he studied medicine at the same time under Dr. Peirson of Salem, whose daughter he eventually married, his responsibilities as school-teacher may have been helpful in his literary achievements. It was his usual habit to rise at an early hour and busy himself in writing until breakfast-time. He was more fond of writing on topics than on larger subjects and was disinclined to undertake systematic treatises although he contributed sections to comprehensive works on surgery. It was not unusual for him to be engaged upon several papers simultaneously and it was easy for him to accept an invitation to read a paper without being obliged to write exclusively and in haste. His preparation of these papers never seemed to interfere with his surgical practice or teaching. In the reading of them his plans were formed so long in advance that he was called upon to abstain only from the emergency-operations which could be cared for if desired, by his assistants. In a way his writings served not only as a relaxation at the time but, when read, as a respite from his continuous and arduous labors through the journeys he would take to reach his audiences.

His was a rare personality and made itself appreciated wherever he was known, but especially in New England where his loss will be felt as that of no other physician or surgeon of his time. He had a simple nature, was gentle yet genial, with a sweet disposition, ever obliging and always considerate of the feelings of others. He was not ready to take offence but was hurt by ingratitude, though ever forgiving. These attributes gave him a personal charm felt by all who came in contact with him. At the same time he possessed a marked strength of mind, unusual intelligence and pronounced vigor and energy. He was impulsive, but his impulses were generous. He controlled his temper but with evident effort when it was roused. When in action he was alert and tense and in his prime his endurance seemed inexhaustible. He had a certain gaiety of temperament but was ever anxious with regard to his responsibilities, although easily rallied from disagreeable or unpleasant thoughts. In some respects childlike in his dependence he was nevertheless resolute in his independence. He was generous to a fault and the larger his income the more lavish his outlay. With his whole-souled nature, free from suspicion, he was easily taken advantage of by an appeal to his nobler instincts. A poor beggar but a willing giver in the interests of his teaching or of his practice among the unfortunate. He lived a life of usefulness and achievement, envied by many and beloved of all. He was a leader in American Surgery, owing his development and success almost wholly to the opportunities which his country afforded, and untiring in availing himself of them.

II.

BY S. J. MIXTER, M.D., BOSTON.

WE meet to do honor to the memory of a friend, a friend whose genius, skill and noble achievements have raised for him a monument more enduring and fitting than any could be fashioned by us. His work was well and faithfully done—he leaves the world the better for his life, and while we mourn his loss, we glory in the great good that he was able to do for the relief of human suffering.

I first saw Maurice Howe Richardson when I entered the Harvard Medical School in 1875, when he was pointed out as the only man who had ever received the hundred mark in an anatomy examination. Splendidly developed in body and mind, he overcame difficulties with apparent ease that required severe effort of the average man. Living in the same house on Allen Street near the Massachusetts General Hospital, our friendship began, and it remained warm and unbroken till his death.

He was already a wonderful dissecter, and spent as much time as he possibly could in the dissecting room, polishing up his anatomical knowledge, for he had made up his mind then to be a surgeon and a great one, and on one of the student days I remember his pointing to Bigelow as he was doing one of his beautifully executed operations and saying, "I mean to operate as well as that some day." In spite of his surgical aspirations, he worked hard at and was deeply interested in the different medical branches, becoming an expert in auscultation and percussion and a good diagnostician. It was this proficiency that gave him a place as student assistant in the office of Dr. Henry P. Bowditch, whose confidence and affection he won, as he won those of everyone with whom he was associated.

Finishing his medical school career, he received the appointment of surgical house pupil (interne) at the Massachusetts General Hospital, but after a short service, an assistant being needed in the anatomical department of the Harvard Medical School, he received the appointment on account of his anatomical knowledge and great skill as a dissecter, and served in that capacity under Drs. Porter and Beach until his appointment as demonstrator of anatomy in 1882. In those days the prosecting for the professor of anatomy was done by the demonstrator and his assistants, and surely never were more artistic and instructive dissections used to illustrate the lectures.

In the dissecting room, his wonderful anatomical memory, and his great skill, not only with the knife, but in linking dry anatomical facts with the living problems in medicine and surgery, made the work there interesting to even the average student. Anatomical facts without suitable pegs to hang them on, are soon mislaid and lost. He was always busy and the days were never long enough. He had his own living to make, and he helped out the income from his practice, which was a general one, with what surgery he could find to do, by private tutoring in anatomy.

Another work that he did thoroughly and well was that of district physician to the Boston Dispensary. In those days there were no district nurses, no "South Department" (contagious wards) at the City Hospital and only a beginning of the Diet Kitchen. Diphtheria and scarlet fever, the infantile diseases of the summer, and the ever present nursing bottle, with its dirty and deadly rubber tube, had to be fought in the homes of the poor. Tracheotomies had to be performed and watched and nursed as best might be by the physician himself and volunteer student assistants, a dangerous and laborious work.

It was a hard school, but every month was adding to his store of knowledge, and his general work in the Dispensary district was a great aid to him in after life and did much to make him the great diagnostician he became. Could every surgeon have such a preliminary general service, and every internist a surgical service, the profession would be the better for it.

I always remember with pleasure the Sunday visits that, while still a student, it was my privilege to make with him and his ever dear friend, who has so recently left us, the sterling man, the skillful surgeon, the public-spirited citizen—Arthur Tracy Cabot. During the week they would make out a list of the most interesting and doubtful cases, and on Sunday go over them together.

All this time he was still teaching anatomy, and when he was promoted, and no longer demonstrator, he kept on with a course in regional and surgical anatomy, which will always be remembered with pleasure, by those whose privilege it was to attend it. His demonstrations were even more brilliant and instructive than those in the hospital amphitheatre, and the student certainly learned more from them, than from operations on the living. Often he would come in to the lecture room and say, "Tomorrow I do," or "this morning I did" such and such an operation. "Let us go over its anatomy"—and then would follow an hour of brilliant, exact anatomical, surgical teaching, the important facts explained and emphasized by voice, crayon and instrument, and with an enthusiasm that was contagious.

These details of his early professional life have been given to show that the foundation of his great surgical success, was not mere luck or something that came to him without effort, but was hard work and constant practice. In the early days when he had an operation to perform that was not familiar to him, he would spend perhaps hours working on the cadaver, and when he operated later, one not familiar with his methods would wonder at his skill in a new field.

His appointment to the surgical services at the

Carney and Massachusetts Hospitals, early gave him a chance to show his surgical worth. At the Massachusetts General he was for four years surgeon to out-patients and was appointed visiting surgeon on the same day as his friend Dr. Cabot. Here they worked side by side for years, adding to the fame of the institution they loved so well.

The history of abdominal surgery in this city almost, begins with the work of that bold and successful operator—Dr. John Homans. Dr. Richardson was one of his assistants for several years, and his training as an abdominal surgeon, may be said to have begun then. Large tumors of the ovary and the uterus were the first lesions to be attacked, but as the field widened, he was always to be found among the leaders in the fight against abdominal disease.

When the master mind of Fitz discovered the true meaning of inflammations of the appendix, Richardson was one of the first to apply the knowledge, and his early work in this direction won him just renown, and, had he done nothing else, his work and teachings in the treatment of appendicitis would have entitled him to the thanks of humanity—perhaps he looked back at this part of his work with more pride than at any other.

And so he went day after day, and year after year, always working, always teaching, always growing and advancing, till he had achieved the dream of his youth, and become one of the great surgeons of the country and the world, but his work never ceased, and his brain and his pen were busy when his hand was not. His superb physical force enabled him to do the work of several ordinary men, and he was operating in town and country to the very day of his death.

As an operator, he had few equals, rapid, exact, and thorough—radical but not rash, conservative but never timid, only afraid of doing unnecessary or meddlesome surgery—a thing that he had a thorough contempt for.

But even great skill as an operator and exact anatomical knowledge does not make a man a great surgeon—there are operators and there are surgeons, and to be the latter, one must not only be skillful with the knife, but must possess what is equally important, sound surgical judgment. His keen and logical mind, his early training and his constant study of pathological processes in the living, gave to his opinion and diagnosis, a value and weight that was unsurpassed.

His war on malignant disease was unceasing and unrelenting. Given a cancer, no operation was too severe or too radical if it promised a cure and the anatomical limit was the only thing that satisfied him. With inadequate operation or meddlesome interference, with the x-ray, he had no patience. Early radical treatment in these cases, he taught both the profession and the public by his operations and his writings, and though he failed to cure in many cases, as every surgeon must who thinks not of himself, but of the patient, his percentage of cures was surprisingly large.

The list of his writings is a long one, and shows the wide field of his surgical activities. In his private work, other than operations on the appendix, the most frequent were tumors of the breast, those on the gall-bladder and ducts, and hysterectomies, both vaginal and abdominal. Tumors of the thyroid, including exophthalmic goitre, suprapubic prostatectomy, ureteral and kidney stone were among the things that greatly interested him. His distinguishing method of operating was rapid and careful dissection with a very sharp knife, a clear visual field during operation, and extreme care about hemostasis, tying and tying again to make doubly sure.

In his hospital work during the last years of his life, when he no longer had the routine work to do, he liked to choose for his own those cases, where a diagnosis was difficult or the cases on the border line of operable and inoperable. He was, thank heaven, a surgeon who never operated for statistics, and was as willing to report his failures and mistakes as his successes.

Consulting surgeon to a large number of the smaller hospitals in and out of our city, he was ever ready to respond to the call for help from the members of the profession, and, by his aid, his teaching and example, has done more, perhaps, to raise the standard of surgical work in New England than any one man.

One great factor in his success was his singularly peaceful and happy home life—a fond and devoted husband, father and friend, he found his pleasure in his home when his professional work allowed him time for relaxation and rest.

He was spared the infirmities and the ills of old age and wasting disease, and though he left us in the full tide of his usefulness and success, and all too soon, should we wish it otherwise?

The Great Surgeon! And now The Man.—Those of us whose great privilege it was to know him best and to love him best, can scarcely put in mere cold words of our feeling toward and of him. Honest and upright with others and with himself, a true friend—a hater of shams and poor workmanship, a help in time of need to any member of his profession who was in trouble—hospitable almost to a fault—a genial host—an ardent and true sportsman—why continue the list? Cabot sums it up, "Big of body, great of soul, strong of mind and warm of heart.' Can more be said?

III.

BY GEORGE LINCOLN WALTON, M.D., BOSTON.

I LEAVE it to others to rehearse the medical achievements of Dr. Richardson, that remarkable man whose diagnostic ability, clinical judgment and mastery of surgical technic were familiar, not only to the profession, but to the general public. Possessed of strength and vitality

enabling him to do at least two days' work in one, he was also gifted with a largeness of heart and ready sympathy that put him at once on a friendly basis with every patient. I have a picture of Dr. Richardson in my office, and am always ready for a consultation to be interrupted when it catches the patient's eye, and for him to brighten up, however sad his story, to tell some anecdote illustrating the kindly interest that supplemented the surgeon's skill.

But it is not the Doctor I would recall tonight, so much as "Maurice," as we loved to call him, "The Old Man," as he was affectionately termed by his juniors in the work, a nickname he was so far from resenting that I have more than once heard him apply it to himself, as when he would say, "Let's see if the old man has forgotten how to put on a bandage," or the like. Such appellations mean, with some, a lack of dignity, perhaps an approachableness rather to be deplored. Not so with Maurice Richardson. Here was a man who could, and did, lay bare his inmost thoughts, and expose all his hopes, fears and failings for the inspection of every passer-by, to gain thereby instead of losing dignity. In his case familiarity bred only wonder and admiration, not to say honor and respect.

Perhaps the most striking among his mental attributes was his straightforward, open way of conducting affairs. He seemed what he was, and he was what he seemed. It does not cover the ground to say that he was honest. Many, perhaps most of us, can lay sufficient claim to this distinction to escape, at least, the accusation of dishonesty, but with him it went much further: concealment and subterfuge were absolutely foreign to his nature. He had no secret motives, there were no mental reservations when he spoke, nor would he keep silence when silence was misleading.

I have read somewhere this anecdote illustrating the direct method, and at the same time the inflexibility of purpose, that characterized a great general even in his youth. Intrusted by his father with the purchase of a valuable horse, he was instructed to offer a certain amount, the offer to be increased and, if needful, increased again, up to a certain point. Upon the owner of the animal asking how much he was prepared to pay, the boy repeated these instructions! The highest of the sums was promptly stated to be the price. But the boy said he had decided to pay only the lowest, and in this decision he was so firm that the horse finally changed masters at that figure. Similarly the communications of Maurice Richardson were yea and nay, and if a messenger were required in a matter requiring secrecy and reserve, it were wiser to select another. And it is only fair to add, that if he had been sent to purchase the horse he could hardly have been relied on to secure it at the lower price, for he never did things on a small scale, except to name the fee for his services to the needy.

Sensitive as Dr. Richardson was to the opinion of his friends (I think he had no enemies) he neither shifted responsibility nor parried criticism. Considerate as he was for the shortcomings of others, he wasted no time in finding excuses for himself. Indeed, on one occasion, at least, he went so far as to accept without complaint what another might have resented as unwarranted blame. Something had occurred in the management (not surgical treatment) of a certain case, to which the family took exception. It was one of those happenings to which any busy practitioner is liable in a matter in which he had to depend on information received from others. Upon my expressing some interest to know in just what terms he would meet the complaint of the member of the family who was to visit him, he said he had spent no thought on that aspect of the case, he was only concerned for the welfare of the patient. On being asked later the result of the interview, he said the visitor began, "Don't you think you ought to have known, Dr. Richardson?" to which he answered something like this, "Of course, I ought, and it has troubled me greatly," upon which the complainant himself began to find extenuating circumstances, and was shortly telling the doctor he must not feel badly, for it was an occurrence he could not have been expected to foresee. Thus, where many of us could easily have made an enemy, Dr. Richardson only cemented a friendship.

He took great satisfaction in success, and exhibited no false modesty regarding his abilities, but he chose to demonstrate his skill instead of talking about it. Well as I knew him during the greater part of his professional life, I was constantly surprised at exhibitions of his manual dexterity and intellectual acumen in branches of which he had never spoken in my hearing. It would never occur to him to mention the fact that he could use the typewriter with speed and accuracy, that he could play whatever musical instrument came to hand, that he was familiar with Horace and Epictetus, and an enthusiastic student of English composition, as unlikely to split an infinitive as to overlook a nerve fibre in the field of operation. And I have left out the directions in which he was generally known to be exceptionally proficient.

An incident illustrating his versatility is fresh in my mind. It was musical evening at the house of a mutual friend. The leading performer was requested to sing the Erl King, to which she assented provided anyone could play the difficult accompaniment. No one else offering to do so, Dr. Richardson took his seat at the piano and played it without hesitation.

Another experience will serve to show that his wits were flexible as well as his fingers. We had attended the entertainment of a well-known prestidigitateur among whose feats was that of beginning at any point on the chess-board and covering all the squares by the knight's move.

On learning that this was a genuine effort of memory (with certain associative aids) Dr. Richardson decided to try it himself, and found no difficulty in mastering it in a very short space of time. With many this would have furnished a parlor trick for a lifetime, but I never heard him speak of it again.

It will not surprise his intimates, though it may surprise some who think only of his boldness and skill as an operator, when I characterize Dr. Richardson as essentially painstaking, thorough, industrious, studious and conscientious in the minutest details. In undertaking a new operation he left nothing to chance, grudging neither time nor trouble practically to familiarize himself with the landmarks, or rather to pass them in review from the new standpoint. When reduction of cervical dislocation was in question I remember his taking me to the dissecting room at the top of the old Medical School on Boylston Street, to practice on the cadaver. The experience was repeated when the proposition was broached of free removal of nerves and muscles for spasmodic torticollis. In both instances those immediately to benefit were charity patients at the Massachusetts General Hospital. And in the gratitude of such patients he took the greatest delight.

The poet might well have had Dr. Richardson in mind when he wrote of another:

"All hearts grew warmer in the presence
Of one who, seeking not his own,
Gave freely for the love of giving,
Nor reaped for self the harvest sown.

"Thy greeting smile was pledge and prelude
Of generous deeds and kindly words,
In thy large heart were fair guest chambers
Open to sunrise and the birds.

"Oh friend! If thought and sense avail not
To know thee henceforth as thou art,
That all is well with thee forever
I trust the instincts of my heart.

"Thine be the quiet habitations,
Thine the green pastures, blossom sown,
And smiles of saintly recognition,
As sweet and tender as thine own."

Original Articles.

THE PROBLEM OF DRUNKENNESS.*

BY IRWIN H. NEFF, M.D., FOXBOROUGH, MASS.

This paper is an attempt to present as briefly as possible the modern views of inebriety and to suggest a workable plan for taking care of these perplexing cases which are so frequently seen in all walks of life. Lack of uniformity of opinion has heretofore interfered with the adoption of any practical curative or custodial scheme for taking care of cases of drunkenness. We have gradually come to the opinion that something should be done for the confirmed and immoderate drinker, and popular opinion now demands that concerted effort should be made to inaugurate some plan which will be feasible and practical, which will not only help the victim of drunkenness, but will lessen the enormous expense annually incurred in caring for these people who succumb to their weakness for artificial stimulation.

Believing as I do that all inebriates should be removed, at least temporarily, from their customary environment I have purposely omitted all reference to non-institutional treatment, which I believe should supplement institutional care and should be considered as a part of the out-patient medical service of an institution designed for the care of inebriates. It is also my belief that the ultimate solution of the problem of drunkenness is intimately associated with the study of the personality of the inebriate. An institution designed for such a study, scientifically and humanely conducted, should be considered as an educational centre offering opportunities for the study of drunkenness from all view points.

The inefficiency of the present system of caring for cases of drunkenness has created a popular demand for a better and more discriminating method of handling, (1) those cases of drunkenness which are constantly appearing in our courts, (2) the cases of alcoholism which voluntarily subject themselves to treatment.

The futility of punitive measures in caring for cases of drunkenness is universally conceded. The large percentage of relapses of those sentenced to our jails and houses of correction is a convincing argument for a more rational and humane method of handling such cases. The present way of taking care of arrested cases of drunkenness by release, fine, suspended sentence, probation, and determinate and indeterminate sentences, is acknowledged to be unsatisfactory, but as no adequate substitute for such procedure has been offered the method has been continued with recognized disadvantages. Such a system is manifestly unfair to the tax payer who pays for the imprisonment of the offender and unfair to the victim, who is not given the care or treatment which his condition warrants.

The growth of the present interest in the alcoholic can be said to have originated from three sources. The sociologist has for a long period of time realized the necessity for the rational handling of drunkenness which, as he knows, is closely related to poverty, domestic infelicity, crime and mental and physical decadence. The medical profession has awakened to a realization of the fact that the problem of drunkenness is primarily a medical problem, and properly belongs to a branch of medical social work which has heretofore been neglected. Lastly, the judiciary have shown their willingness to affiliate and co-operate, if some practical way of handling court cases be inaugurated.

* Read at the International Congress on Hygiene and Demography held at Washington, D. C., September 23-28, 1912.

The interest in this subject is perhaps better and more convincingly shown by the attitude of many states which are considering legislation, or which have legislation pending which will permit them to give state care and treatment to the inebriate.

It is the consensus of opinion that any plan put into execution for the control or treatment of drunkenness should be directed by states or municipalities. For obvious reasons state control is preferable and should be strongly advocated. By assuring state control we are reasonably sure of securing modern methods which will be legitimate and will carry out economically and humanely measures for the proper care and treatment of these people.

The ignorance of the public of the true nature of drunkenness, of the causes for the condition, and the procrastination of those who are in power to direct reform movements, have proven serious handicaps to the carrying out of any practical plan. Such ignorance or heedlessness has also been responsible in great part for the many irregular methods which have been advanced and heralded as cures for drunkenness and allied conditions.

Any method inaugurated for the care and treatment of confirmed drunkenness, to be practical and wide-reaching, must recognize certain fundamental starting points, which can be enumerated as follows:

1. A comparatively small percentage of users of alcohol are confirmed drunkards or inebriates.

2. The appropriate care of the alcoholic implies both curative treatment and custodial care; the curative treatment being directed to the case which is likely to be benefited, the custodial, for economic reasons, should be directed to the recidivist, constantly appearing in the courts. Such a differentiation must eventually be made and appropriate segregation of these two types established.

An attempt to use successfully a remedy for a condition, or to establish a cure for a disease has as an essential requisite the implication that the nature of the condition or disease is understood. Before modern methods of medical investigation and diagnosis were put into practice sporadic attempts were made to treat many diseases although the true nature and pathology of such ailments were unrecognized. These haphazard methods of treatment were unsatisfactory and quickly became obsolete when the true facts concerning the diseases were ascertainable. A parallelism is found in drunkenness. We cannot establish a uniform and satisfactory method of treating the grades of chronic alcoholism until we have a common knowledge of its causes, nature, and particularly of the susceptibility of the distinctive types to treatment. We must expect a wide divergence of opinion until such knowledge is obtained, disseminated and generally credited. I refer specifically to chronic alcoholism or confirmed drunkenness disregarding acute alcoholic intoxication, which from a medical standpoint is quite clearly understood. Drunkenness as we are now considering it implies repeated attacks of intoxication due to the ingestion of poisonous quantities of alcohol. For the purposes of this paper this definition is acceptable.

There are two widely opposite opinions of drunkenness.

The more modern conception of the condition denoting it a disease has too often been accepted without proper qualifications. Opposed to this opinion there are those who declare that drunkenness is a habit, and that the drunkard purposely invites drunkenness, a condition which he could prevent if he so desired. The believers in the theory that drunkenness is a disease declare the alcoholic irresponsible and demand that he be segregated and be compelled to submit to enforced detention and compulsory abstinence. The adherents to what I may call the habit theory, who believe the victim of drunkenness to be a slave to his habit, suggest punishment in some form for the offender against society.

The acceptance of either one of these theories of drunkenness implies one remedy, coercion, in other words, a suggestion for the enforcement of punitive measures; often the method of punishment meted out to these individuals shows considerable originality and variability, and a noticeable lack of uniformity. It is not denied that in some cases such a method has been efficacious, but it is questioned whether a true case of inebriety has ever been materially or permanently helped by such a practice. The futility of such a method has long been recognized, but as no satisfactory substitute has been offered this time-honored custom has prevailed. From the sociological point of view many of the problems of drunkenness have been thoroughly studied. The sociologists engaged in the study of drunkenness have seemed to appreciate the magnitude of the task and have gradually accumulated certain facts which have furnished them with admirable working capital. My association with these people and with court officials has shown that they are anxiously awaiting more light on the medical aspects of the subject. They keenly appreciate that without the aid of the medical profession drunkenness must remain an unsolved problem. It is only within the past decade that the physician has recognized that the study of the inebriate was a medical-social study, and that the problem of drunkenness is primarily a medical problem which has heretofore received insufficient attention.

The problem of inaugurating a practical plan for the prevention and cure of inebriety rightly belongs to medicine, as its correct solution is first of all a remedial measure, and secondly, educational, along the lines of preventive medicine.

The study of inebriety begins with the inebriate and requires individualization in treatment in its strictest sense. It is only by intricate

analyses of the individual cases that we can appreciate the true personality of the inebriate, and thus can correlate the data which will give us a working basis and a rational method of caring for these people who drink to their detriment and destruction.

R. W. Branthwaite has made the statement that every alcohol user may be placed in one of three classes: First, those who drink moderately; secondly, those who drink more freely than is consistent with strict moderation, or who are occasionally intoxicated; thirdly, those who are habitually intoxicated, or are subject to occasional outbursts of uncontrollable drunkenness.

The same author believes that the pathologic inebriate is represented approximately as somewhere between two, and two and five-tenths per cent. of all alcohol users. Such an authoritative statement prepares the way for the acceptance of the author's description of the inebriate, which is as follows: "The distinctive characteristic of the man who is an inebriate is his inability to take alcohol in moderation despite the most strenuous effort of which he is capable. It is a psycho-neurotic fault that implies defective resisting power to the action of alcohol or drugs. It is possible that inebriety may be acquired by long-continued indulgence, just as the tubercular disease may be acquired by long exposure to chronic infection or a brief exposure to an exceedingly virulent infection, but it is more properly inherited as a diathesis in most cases, remaining latent or becoming evident according to the personal habits or environment of the individual." Observations which have been consistently made at the Massachusetts Hospital for the treatment of inebriates during the past four years, justify us in corroborating these conclusions. The result of our experience can be expressed as follows:

1. Inebriety is an expression of nervous weakness; founded on this weakness is a habit, which we call drunkenness.

2. The antecedent weakness is either acquired or in the nature of an inborn defect.

3. The nature of this nervous weakness is as yet not accurately defined; it appears to be closely allied to degeneracy and related to the minor functional nervous diseases.

4. The inebriate is, as it were, a sum total of his personality and the symptoms attributable to alcoholism.

5. Inebriety should be considered a disease in the sense above described. The acceptance of this theory implies responsibility on the part of the inebriate, although it admits of extenuating circumstances.

6. There is no known drug which can permanently eradicate the desire for drink.

The inebriate is a personal equation, each case a personal problem requiring for its solution individual consideration and treatment. It should be remembered that the correct and ultimate solution of such a problem rests largely with the patient, who by his own efforts must co-operate in the educational measures carried on at the hospital. Any correctional measure imposed or any medical treatment instituted which is finally opposed by the patient, must necessarily end in failure. The experience of those who are concerned in the treatment of the inebriate is overwhelmingly in favor of the educational system, as it is a form of treatment which insures co-operation between the patient and the physician. The educational system, so called, which is now in vogue in the hospitals of Great Britain, Australia, Switzerland, and is exclusively in use in the State hospital in Massachusetts, recognizes that there is no known drug which can permanently eradicate the desire for alcoholic stimulants. These hospitals rely largely for treatment upon the effects of pure air, good food, abstinence from alcohol and drugs, regular hours, and out-of-door, skilled labor. Medicine is given where needed, but this program, which is followed in the best prisons as well as the hospitals, is not in itself sufficient to cure the pathologic inebriate. The chief method of cure for inebriety depends upon our ability to have the patient fix his attention on his defect and thus co-operate in his own recovery by strengthening his self control.

Two years ago Massachusetts inaugurated a medical after-care department, in charge of a physician assisted by the hospital staff. This out-patient department was from the first considered an integral part of the hospital, and has been maintained and supported by the hospital. The department has been in the charge of a physician who, occasionally assisted by the hospital staff, has successfully carried out its provisions. The after-care department has proven to be eminently successful and is to be highly commended. The duties of this department have been gradually extended and a considerable amount of out-patient work has been accomplished. This medical-social work is participated in by every member of the hospital staff, and is considered as supplementary to the educational work carried on at the hospital.

My knowledge of the countries, cities and towns which have provided accommodations for the care of inebriates would indicate that the benefits derived from such care would have been enhanced if it had been possible to have carried out a more thorough differentiation of cases, which would have allowed for a better segregation of the types. To secure such segregation or appropriate grouping of cases and institutional care, there is one system which is distinctive and which appears to be eminently practical. I refer to colonization, which offers peculiar advantages for the treatment of the inebriate. In order to establish a colony system for the purpose of caring for the inebriate it is essential that a large area of land be secured which will allow for a cottage grouping, and which will also pro-

vide sufficient farm land so that a proportionate area can be allotted to each group. With the single exception of one, a small terminal custodial group, composed of recidivists, each cottage should for the purpose of carrying out the educational scheme, and individualization of the patients, be considered a unit, and if possible this unit scheme should be carried out to the minutest detail. Necessarily such a plan must allow for receiving wards, where the differentiation of the cases should be made before the patients are placed in the respective cottage groups, a hospital building for those physically ill or incapacitated, and service buildings, to secure concentrated business administration. With the exception of the receiving ward, the hospital building and service buildings, which constitute an administration group, all the buildings should be detached and administered as units. In this way the association of types can be reduced to a minimum. Centralization is to be avoided as far as practical as it defeats the purpose of the plan.

It should be understood that the system above described refers more particularly to the case which is susceptible to hospital measures. The case which has been repeatedly tried out and has by reason of its chronicity and consequent moral deterioration proven to belong to the custodial class, should be cared for in larger units and with a lessened expenditure. The size of the unit is a matter of importance. A larger unit than fifteen to a cottage in the hospital group is not recommended. On the other hand the custodial unit could be safely considered to be twenty-five. A larger number in either group will be found to seriously interfere with the individualization of the patient, which is the keynote of our treatment. The quality or character of the unit is an important consideration; it embodies environment suitable to temperamental characteristics and necessarily includes a consideration of the patient's social status, his former mode of living, and the results anticipated and desired from educational treatment.

The natural criticism to a colonization scheme as above outlined would be the considerable expense involved. This criticism can be met by claiming that such an expense will be saved many times over. It is certainly cheaper to cure an inebriate, or care for him as above planned than to pay for his constant accumulating expense from repeated sentences to jails and houses of correction. Again it is well to remember that in a well organized colony for inebriates, the greater part of the construction and repair work can be accomplished by patient labor. Another source of revenue which will materially lower the per capita cost would be the sale of the excess farm products which have been procured largely by unpaid labor.

Massachusetts has had for twenty years an institution for the treatment of inebriety. Those in charge, realizing the greater needs of extension of treatment and the defects of the present hospital, have secured legislative action and have been granted appropriations which have allowed for the purchase of land and will allow for the erection of buildings which will care for both the hospital, or hopeful, case and the recidivist, who properly belongs in the custodial group. The most obvious needs for the proper constructive treatment of the inebriate are as follows:

1. Sufficient land for agricultural development.
2. Sufficient accommodations for industrial training and workshops.
3. An opportunity for segregation of the diverse types.
4. An opportunity for the treatment of both sexes.

Remembering these needs land was purchased during the year 1911. The tract of land purchased comprises approximately one thousand acres of both cleared and wooded land. The site is made up of hills and low lands, allowing for natural building sites and affords sites for farms and agricultural development. The farm houses on this land available for patients have been in use during the past year. The experience of Massachusetts warrants us in declaring that the colonization of the inebriate and drug habitue, thus far carried out, is elastic and permits of differentiation, segregation and individualization, which are essential factors in carrying out the proposed plan. As a necessary adjunct to this scheme particular mention should be made of the Massachusetts State Farm, which has for a considerable period of time successfully cared for cases of drunkenness sent there by the courts on indeterminate sentence. Attention is called particularly to the State Probation Commission, which by its hearty co-operation, will send a considerable number of cases to the colonies. It is proposed that the new hospital shall care for non-criminal cases of drunkenness and that the State Farm as heretofore shall receive criminal cases of drunkenness, and in addition shall receive those cases which do not submit to the discipline of the hospital. It is believed that this system will be retroactive and will successfully care for all cases of drunkenness which are brought before our courts for arraignment, and also offer ready help to the man who on his own initiative invites treatment for his weakness. The new hospital in process of erection will receive patients who come voluntarily or who are committed by the court upon application, under the existing law. Second, young habitual drinkers, placed on probation by the court on condition that they spend a specified period at the hospital. Third, suitable cases transferred on parole from the detention colony. The department for women would receive: first, patients who come voluntarily or are committed on application; second, cases placed on probation by the court on condition that they spend a specified period at the hospital.

The detention or custodial colony, widely

separated from the hospital colony, would receive non-criminal habitual drunkards from the courts on indeterminate sentence or commitment.

The commitment of a case of drunkenness to the hospital removes the stigma of a prison sentence, thus insuring the co-operation of the patient if it is a possible thing, and relieving the family of the disgrace which necessarily follows a prison sentence.

It is believed that this plan, allowing for the colonization of non-criminal cases of drunkenness, and proper segregation of the types, will facilitate the study of contrasts in cases, and by furnishing opportunity for scientific study, will contribute to medicine and society new and important knowledge for the better study of the problems of drunkenness.

TUBERCULOUS MESENTERIC GLANDS SIMULATING APPENDICITIS.*

BY DAVID W. PARKER, M.D., MANCHESTER, N. H.

I BELIEVE that it has been the experience of many surgeons when opening the abdomen, perhaps for a supposed appendicitis, to have, at some time, found a comparatively rare and unusual condition instead of the supposed lesion. A case of this kind occurring in my own practice, suggested this paper.

Tubercular disease of the mesenteric glands secondary to general tuberculosis or tuberculosis of the intestines, is so familiar to all that it needs no discussion. There has in recent years, however, come to be recognized among surgeons, a more unusual form of the disease, namely, that of primary mesenteric glandular tuberculosis, so called, cases in which no other tubercular foci can be found on careful general examination, and no others disclosed or macroscopically demonstrated at operation.

These isolated glands or groups of glands may occur anywhere in the mensentery, but most commonly do occur in the mesentery of the ileo-cecal region. This probably takes place because of the physiological comparative stasis of the products of digestion in a mildly alkaline medium just beyond the ileo-cecal valve (Corner—*Lancet*, Feb. 17, 1912). This stasis favors the passage of tubercle bacilli through the intact mucous membrane of the bowel into the lymph channels and adjacent glands without evidence of present or past ulceration of the mucosa as is supposed may take place by Thiemann (*Archiv. für Klin. Chir.*, Jan. 23, 1910). This supposition of Thiemann, however, is not recognized by many eminent pathologists, for example, Takeya and Dold of the University of Tübingen state that from their latest experiments in regard to the penetrability of the mucous membrane of the intestine to the bacilli that "There is always a coaffection of the intestines and glands in which the intestinal affection surpasses the glandular disease in intensity and extent."

The question of the mode of infection, however, is not of paramount importance from a strictly clinical standpoint as, if this coaffection primarily exists, in a majority of cases the intestinal elements must have entirely disappeared, as no evidence of it is present in cases reported by competent observers. As Schlossman says: "For him it is enough to be convinced that there is, clinically, an isolated and primary appearing mesenteric glandular tuberculosis, that is, a tubercular disease of these glands beside which further tubercular foci do not need to be found in the body, often cannot be anatomically found and behind which a previous but perhaps not necessarily specific affection of the intestinal canal can be traced back to the entrance place of the bacilli, although at times, especially some time after the resulting affection, their tracing is wholly impossible. This condition is apparently quite common in children according to Corner, who states that tubercular glands of the mesentery will be found in practically every child submitted to an abdominal operation. He further states that "these children do well and live long, therefore this form of tuberculosis must be very amenable to treatment." If this is true it must also be a fact that these glands disappear spontaneously, except as a rarity, before or during the age of adolescence even without any treatment whatsoever, as the statistics of cases reported in the literature, both domestic and foreign, where primary isolated tubercular mesenteric glands giving rise to serious symptoms have been found at operation are very meagre.

It must be accepted, however, as absolute that primary tuberculosis of the mesenteric glands is to be observed clinically as an exception, perhaps as a rarity, but when it does occur is so alarming in its manifestations, that it deserves serious consideration.

This condition might be supposed to be one essentially of childhood. This also is not a fact, as according to the reported cases of Thiemann, Schlossmann, Newbolt, Lockwood, Maylard and Spelissy, a total of thirty-nine cases, the condition occurs with equal frequency in young adults. Newbolt even states that the condition is met with usually in young adults.

Corner divides the condition into two varieties, an adult type and a type peculiar to children, the former occurring in the neighborhood of the cecum giving rise to pain in the stage of caseation usually diagnosed as appendicitis without palpable tumor formation. The second, among children, giving palpable glands usually in the free mesenteric edge of the small intestine. Thiemann's twenty-six cases, however, do not agree with this classification of Corner, as he finds nine cases of children's type in adults and four cases in children of the adult right iliac type of Corner, therefore we must not be misled in seeking a certain fixed type ac-

* Delivered before the New Hampshire Surgical Club, September 17, 1912.

cording to the age of the individual. We do know that the disease seems by pre-election to occur in the ilio-cecal triangle, and although rare, must be considered seriously in our diagnosis of conditions in this region.

Unfortunately the diagnosis of this disease is very difficult, in some cases even impossible, as it apparently follows no definite peculiar symptom complex. A certain proportion of cases complain of vague abdominal pains pointing to no particular organ, in children possibly coming on at night or after the ingestion of food accompanied by the loss of appetite and disturbance of bowel function, more often constipation than diarrhea (Corner).

Maylard goes so far as to state that except when the glands form sufficiently large masses to become tangible, it is doubtful whether there are any symptoms in themselves suggestive of tubercular infection.

He further states that when wasting, diarrhea, night sweats, increase in temperature, etc., are present, they are probably the result of other tubercular lesions than those exclusively dependent on the mesenteric glandular involvement. On the other hand isolated mesenteric glandular tuberculosis may be the underlying cause of a very alarming train of symptoms demanding, or seeming to demand, immediate surgical intervention.

It is a peculiarity of this lympathic gland disease that it occurs either with moderate indefinite pains pointing definitely to no abdominal organ, or appears, and with a certain preference, under the aspects of two of our worst and most frequent abdominal diseases. This is well illustrated by the cases which I will report and on which this paper is based.

CASE. Male, 18 years old.

Family History. Parents healthy, several brothers and sisters all living and well. No history of tuberculosis.

Past History. Since childhood attacks of abdominal pain, right iliac, with vomiting, characterized by him as bilious attacks.

Present Illness. Two days ago taken with pain in the abdomen followed three hours later by vomiting. Pain has continued together with nausea and occasional vomiting since. When seen, December 1, 1911, complained of pain, quite severe, in the region of the appendix with nausea and vomiting. Said that bowels had moved well the day before.

Examination. Slender-built boy of rather delicate appearance. Skin rough and covered with spots of acne. Heart and lungs negative. No glandular enlargements palpable. Tongue coated. Abdomen not distended. Localized tenderness below and to right of umbilicus, severe on deep pressure. Slight rigidity of right rectus, abdomen elsewhere negative. Temperature 98.6. Pulse 80.

Provisional diagnosis probable appendicitis.

On account of the lack of urgent symptoms and the normal temperature operation at this time did not seem imperative, so rest in bed, enema, and light liquid diet ordered.

Dec. 2, 1911. Condition not improved, pain and vomiting still persisting. Pain still localized over the appendix region. Rigidity of right rectus present. Temperature 98, pulse 72 but not good in character. Some distension of the abdomen. Movement with enema yesterday, but none since. No flatus. Patient looked ill, pinched and drawn. As the condition did not seem to be improving and the general condition of the patient was surely not as good, immediate operation was advised.

Operation. Right rectus incision. On opening the peritoneum coils of intestine distended with gas, injected and bluish in color presented. There was a small amount of free straw-colored fluid in the abdominal cavity. Coils of intestine walled off. Appendix sought and found atrophied and bound down external to the cecum by old adhesions. No evidence of acute appendicitis could be found. Collapsed coils of ileum found, followed up, and about two feet from the ilio-cecal valve a sharp kink discovered. This was due to dense adhesions between the intestine or ileum at this point and an inflamed caseous mesenteric gland the size of a walnut, situated near the abdominal attachment of the mesentery of the ileum low down. Near this gland was found also another smaller one also caseous. The adhesions between the gland and intestine were separated with extreme difficulty, a small hole being torn in the bowel during the process, probably due to a diseased process of the intestinal wall at this point. The bowel was sutured in three layers. The gland which was a soft caseous mass was removed by blunt dissection. The bowel was straightened out, appendix removed, abdomen closed with tube and gauze drainage. No other macroscopic evidences of tuberculosis were apparent. Patient did not stand ether well and was in poor condition all through the operation. Pulse rapid and of poor quality.

After the operation patient rallied and seemed much better. Passed flatus and some fecal matter until the third day when he took a turn for the worse, developed ileus, temperature and vomiting and gradually grew worse until he died.

No histological examination was made, but the macroscopic appearances were so typical that there was no question that the condition was one of tubercular gland disease.

This case, although unfortunate from a surgical standpoint, was very interesting. Here we have a case of isolated tuberculosis of mesenteric glands beginning with the symptoms of an acute recurrent appendicitis and progressing along the lines of an intestinal obstruction, although the latter did not appear in the symptoms during the early stages. I believe in this case that there was no way of arriving at a definite diagnosis of tubercular mesenteric glandular disease which had caused by direct contact, irritation and adhesion to a contiguous loop of bowel with resultant obstruction. That this was a progressive process I have no doubt.. It was without doubt the underlying cause of the previous attacks of pain, the bowel probably becoming adherent early in disease and as it progressed, slowly becoming angulated by the growth and contraction of the adhesions until obstruction resulted. Even could a mass have been felt, in the absence of tubercular history or evidences of the disease elsewhere in the body,

a diagnosis could have been arrived at only in a conjectural way.

In regard to the therapeutic indications I will speak later, but first wish to present a second case which I am enabled to report through the courtesy of Dr. C. A. Sturtevant of Manchester.

Case. Boy, age 4.

Family History. Parents healthy, two aunts on father's side died of tuberculosis. One other child well and strong.

Past History. Breast fed, always well and strong, well developed and nourished.

Present Illness. When at play kicked in the right side below the costal border about the level of the umbilicus, complained of pain and some slight soreness at the site of the injury. On the third day vomited, pain moderate. Seen on the fourth day. Temperature 99½, pulse 100. No symptoms at this time except vomiting.

Examination. Tenderness near McBurney's point. Tension of the right rectus, slight dullness to percussion over tender spot. Sense of resistance in the region of appendix. No obstipation. Ice, liquids and rest in bed ordered.

Fifth day. Temperature 100, pulse 100. Abdominal symptoms same.

Sixth day. Pulse and temperature normal.

Abdominal symptoms same.

Seventh day. Abdominal symptoms same. Operation advised.

Operation. Eighth day. Operation. Diagnosis appendicitis. Right rectus incision. On opening the peritoneum a large soft caseous mesenteric gland size of a goose egg and many small ones found. There was no evidence of intestinal involvement, no evidence of adhesions, appendix normal, small amount of fluid in the abdomen. The gland was incised and large amount of soft caseous material evacuated. Abdomen closed with drainage. Convalescence uninterrupted.

In this instance we have the disease manifesting itself in a different phase, that of a slowly developing, moderately severe appendicitis with nothing in the history or symptoms pointing to the true condition. In children, to quote from Maylard: "When a palpable tumor is present, the diagnosis is easier than in adults, for where in the latter there are many conditions giving rise to tumors, simple and multiple within the abdomen, in the former there are but few, indeed, it may be said that hard, movable lumps in the belly of a child which are not fecal and which remain constant under all conditions, are almost certain to be tubercular mesenteric glands." This is borne out by the investigations of forty cases of primary abdominal tuberculosis in childhood at the East London Hospital for children by Branson. According to Thiemann, however, even in adults a diagnosis may be possible, as he states that multiple tumors in the region of the small intestine, if leukemia is ruled out, are almost pathognomonic. He also believes primary mesenteric tuberculosis is a frequent cause of run-down condition, otherwise unexplainable. Thiemann also makes a distinction between cases with peritonism having fever, pain, perhaps tenderness, and no peritoneal involvement, and other cases with localized peritonitis, adhesions, formation of bands and obstructions. This distinction is well illustrated by the two cases reported.

The difficulty of diagnosis of primary mesenteric tuberculosis and its confusion with appendicitis or ileus is well illustrated by a review of the cases reported in the literature by competent observers. A careful analysis of these cases would be very interesting and extremely valuable, but time will not permit. Suffice it to say that out of thirty-nine cases reported in the literature, in a very large percentage a diagnosis of acute or chronic appendicitis or ileus was made, and the true condition recognized only after the abdomen had been opened. So, it may be truly said that because of the rarity of its appearance, the almost absolute lack of all indications of tuberculosis in other parts of the body, especially of the intestines, its peculiar character even in the cases in which a mass is to be plainly felt, that a diagnosis can be arrived at only in a conjectural way. In cases of the nature of those reported, however, from the standpoint of treatment the more or less accidental pathological diagnosis is not of decisive importance, as laparotomy is indicated anayway, and the condition found can be dealt with as indicated. Where obstruction is found due to bands or adhesions, as in the first case, an operation is not only necessary but imperative. In cases of the type of the second case, where a large, soft, caseous, tuberculous gland, giving rise to symptoms even without peritonism is found, the indications are, without doubt, for removal, as many cases are reported where just this type of gland has gone on to suppuration and rupture, with resultant general peritonitis and death.

The question now arises as to what course shall be followed in cases where tubercular mesenteric glands are found during operation for some other condition, or when a palpable mass is present giving rise to slight or no symptoms, or in the type, described by Corner, found in children where the symptoms are chronic ill health, vague abdominal pains and discomfort, anorexia, etc., with or without tumor on abdominal palpation.

In general the treatment of isolated tuberculous mesenteric glands seems, at the present time, to be in the transitional stage. Only in comparatively recent years have the advances in the technic of abdominal surgery, caused the question of operation on these glands to enter the field of practical treatment. This perhaps has been encouraged by the success attending the removal of cervical glands.

Looking at the Conservative Side of the Question.

From analogy to glands elsewhere, especially cervical, there is ample evidence to show that in many cases, tubercular glands after reach-

ing a certain stage, may subside and in a sense disappear. So, according to Maylard, the normal vital resisting forces of the body should be increased as much as posible before thought of operation is entertained. On the other hand we know that glands in a certain proportion of cases, do not subside, but become inflamed, go on to suppuration, burst, and discharge their contents, a serious and sometimes fatal occurrence in cases of mesenteric glands, as shown by cases reported by Maylard and other surgeons of repute. In addition, tubercular mesenteric glands may be the exciting cause of the symptoms, for the relief of which, the operation was performed, although this might not be recognized even at the operation itself, as is well illustrated by a case reported by Newbolt, which I wish to quote briefly: "Case, girl nineteen, diagnosis, chronic appendicitis. At operation appendix removed. During operation several calcareous tuberculous glands noticed in the mesentery of the ileum at the lower end. After the operation the patient complained of the same pain as before in the right iliac region. Six months later the abdomen was reopened and the glands removed, with a resulting complete relief of symptoms."

It also seems to be fairly well agreed upon that plainly palpable glands especiallly if pain or tenderness is present, should be removed, especially when the same are located in the ileo-cecal triangle (Thiemann.)

As to the treatment of those cases in children with indefinite symptoms described by Corner. Corner says: "That from a very considerable experience with these cases, that tubercular mesenteric glands and a dilated appendix containing fecal material, but otherwise not obviously diseased, are always found. The appendix is removed, whereby a great danger is obviated and a great source of discomfort, from contractions on the fecal matter (appendicular colic) is avoided. After the operation patient is sent to the country. In nine out of ten cases improvement is rapid and great. Hence," he says, "there can be no doubt, certainly in my mind, that the appendix is the great source of danger and discomfort in these cases."

It is thought by some observers of unquestioned standing that opening the abdomen alone without removal of the glands, may have a beneficial effect upon tubercular mesenteric glandular disease.

To quote further from Newbolt: "Tubercular, mesenteric glands, and tubercular peritonitis, merge one into the other, and it is probable that early operation by removal of the appendix and glands in the ileo-cecal region, when possible, may cut short this disease.

In regard to operation for tubercular mesenteric glands, Corner says: "From the point of view of advising operation, it is most important that a tumor, the result of tuberculous peritonitis and one of tuberculous mesenteric glands, the infection being from the intestine, perhaps from a tuberculous enteritis should be distinguished." That is to say it would be a mistake to excise glands unless isolated or primary.

IN REGARD TO TECHNIC.

In the removal of tubercular mesenteric glands, it is well to remember that they practically always contain, even in the calcareous state, living tubercle bacilli, and also, that often in the inflamed state, there may be a secondary mixed infection present. Therefore, most extreme care should be taken to avoid contamination of the free abdominal cavity with this infectious material.

Thiemann advises, wherever possible, removal of the gland without breaking into it. If the gland is broken down, he curettes it out and carefully sutures, sometimes using drainage.

Statistics of cases operated show a mortality, for all forms taken collectively, of below fifteen per cent.

In conclusion: I have in this paper tried to present briefly before you a condition which although not mentioned, except in a very brief and casual way in any of the text books of surgery, is mistaken for appendicitis, and even though it occurs only rarely, should always be considered in differential diagnosis. For as Schlossmann says, "There is clinically an isolated appearing tuberculosis of the mesenteric glands which can appear under the form of an acute, severe, appendicitis, and run its course with all the symptoms of acute or chronic ileus." Therefore, when operating for acute appendicitis and the appendix is found to be normal, tubercular glands of the mesentery should be thought of.

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TUBERCULOSIS OF THE MESENTERIC GLANDS SIMULATING APPENDICITIS.*

BY F. B. LUND, M.D., BOSTON.

IN a moderate experience in operating for appendicitis—more than a thousand cases—I have found not infrequently in cases in which the diagnosis of appendicitis was made, although it must be admitted they were often slightly atypical and that the results of the physical examination did not always tally with the symptoms, a sub-acute or chronic appendicitis, together with an acute enlargement of the mesenteric glands connected with the cecum. It has been my custom wherever these glands were markedly enlarged to remove them. In some instances they have been proved by microscopic

* Read in discussion of Dr. David W. Parker's paper on "Tuberculous Mesenteric Glands Simulating Appendicitis. See JOURNAL, p. 915.

examination to be tubercular and in some cases were apparently an acute glandular inflammation associated with a sub-acute infection of the appendix. In other words, the acute symptoms simulating appendicitis were due to the glands and whether the glandular inflammation was due to appendicular infection or not was not determined.

These cases are especially apt to occur in children and the question of the proper procedure of the surgeon on meeting such a case is an interesting one.

Ten years ago, in 1900, before the American Surgical Association, Drs. Elliot and Richardson, of Boston, reported cases of the successful removal of tubercular glands in the mesentery of the ileo-cecal coil, in which a diagnosis of appendicitis was made. In both cases the symptoms were acute. The glands were removed in each instance, and the surgeons seemed surprised that a good result followed. Dr. Elliot's conclusions after reporting his case are of interest at this time.

"Inflammation of the mesenteric glands should be considered in acute abdominal cases occurring in unhealthy subjects. Such an inflammation may be mistaken for appendicitis, as in both, a tender mass is often found in the right abdomen. In both the attacks tend to recur. If, then, the appendix is unexpectedly found normal in a case with acute symptoms, the mesenteric glands should be examined before closing the abdomen, especially in children. The permanent cure attained in the case here reported suggests that the prognosis may be favorable if the operation is done in the early stages of the disease."

The conclusions of Dr. Elliot, which were wise it seems to me ten years ago, in the main hold good to-day. The condition, however, is somewhat more complicated owing to the fact that enlarged glands may or may not be tubercular and in either case may or may not depend upon a primary infection of the appendix. It is to a brief consideration of the problems which may arise in these cases that I call your attention to-day.

In the first place, we have all noted that it is not uncommon in abdominal operations on children from any cause,—appendicitis, intestinal obstruction, intussusception, and what not,—to find a more or less general enlargement of the mesenteric glands. In fact, it is a question whether enlargement of the mesenteric glands is not the normal condition in a very large number of children. Tuberculosis of isolated mesenteric lymph nodes is not infrequently noted at operation for other causes. It appears that these glands soften, calcify, and remain for an indefinite period, often without causing any symptoms from which the patient complains. In cases where the glands are single there is usually no tubercular ulcer of the intestine found to account for them, and we are compelled to explain their presence by the supposition that the bacillus may pass through an apparently intact abdominal wall.

Aside from the general enlargement of mesenteric glands alluded to above as common in children, a mass of tubercular glands large enough to palpate and inflamed enough to cause acute symptoms is not infrequently found in the right iliac fossa, the conditions due to them simulating, as already stated, the symptoms of acute appendicitis. It is these cases that offer us as surgeons the greatest interest and it is to these that I wish to call your attention. A brief review of the literature is necessary at this point.

Corner* in speaking of tuberculosis of the mesenteric glands, states that these glands are the most frequent source of tubercular infection of the body. In regard to operative treatment he states that the cases must be carefully selected, only those being operated upon in which the glands form a palpable mass. Mesenteric tubercular glands are more frequent in children than in adults. Professor G. Sims Woodhead found 78.7 per cent. in autopsies on tubercular children. Other observers have had approximately similar experiences. Branson† sums up his clinical experiences in the words, "With regard to diagnosis it may be laid down that hard movable tumors in the belly of a tubercular child which are not fecal are caseous mesenteric glands." Corner says that in adults tuberculosis of the mesenteric glands is found most frequently in the lymphatic glands which drain the appendix or ileo-cecal region He attributes this to the fact that the cecum contains a hundred- or a thousand-fold more micro-organisms than any other part of the intestinal tract, and the delay in the passage of food in the presence of organisms leads to the formation of lymphoid tissue in the cecal region. There are then three reasons why the lymphatic glands in this region should be the most frequently infected, namely, delay in the passage of food, the presence of organisms, and the presence of inflammation.

In operating on the appendix enlarged glands have been frequently found either in the mesenteriolus or at the ileo-cecal junction which have turned out to be caseous. Suppuration in the mesenteric glands is very uncommon. Even in a septic disease like acute appendicitis suppuration is very rarely seen.

Corner reports five cases of tuberculosis of the mesenteric glands, four of them in children. In the first case the symptoms though thought by some to be due to appendicitis were so atypical that the man was sent home from the hospital with a diagnosis of functional intestinal derangement, and only on his return with increased symptoms was he operated upon and an atrophied appendix and tubercular mesenteric glands found and removed.

His second case was an appendectomy in a child, showing chronic appendicitis and tubercu-

* Lancet, Dec. 23, 1905.

† Trans. of the Royal Med. and Ch. Soc., 1905.

lar glands in the mesentery of the small intestine, which were not removed. I should think it was a fair question whether these glands were known to be tubercular.

The other cases were removal of tubercular glands of the mesentery in children. In one of them there was a bunch which was so definite that the disease was thought to be sarcoma. One of the cases showed the danger of leaving these tubercular glands; it was operated upon late, complete removal was impossible, and death resulted from miliary tuberculosis.

Tubercular peritonitis undoubtedly may result from rupture of a mesenteric gland. Tubercular mesenteric glands are found in association with tubercular peritonitis in all its forms, but it appears that mesenteric glands are also found without tubercular peritonitis. When associated with tubercular peritonitis the glands are distributed all through the abdomen, are found as large movable masses in the mesentery and are the result of an enteritis and not a peritonitis. They are most frequent, as stated above, in the region of the ileo-cecal coil.

Recently (January 23, 1910) Thiemann, as a result of eleven of his own and fifteen other cases, discusses the so-called primary tuberculosis of the mesenteric glands,—cases in which no other tubercular focus could be seen on careful general examination, and no other was disclosed at operation. In some the diagnosis was made by exclusion; in others the condition was found when operation was done with another diagnosis or for other reasons. Corner had divided primary mesenteric gland tuberculosis into two varieties, which correspond with adults and children,—the former in the neighborhood of the cecum, giving pain in stage of caseation, usually diagnosed as appendicitis without palpable tumor formation; the second, among children, giving palpable glands usually in the free mesenteric edge of the small intestine. Thiemann's 26 cases do not agree with Corner's types, for he finds nine cases of the children's type in adults, and four cases in children of the adult right iliac type of Corner. He says that ileo-cecal valve tuberculosis is the most common in the form of a triangle, the base of which is the cecum and lower part of ileum, with the apex at the second lumbar vertebra. There is in these cases, no evidence of present or past ulceration in the ileum or caecum, so he supposes that bacilli may pass an intact mucosa. In other cases of generalized retroperitoneal tuberculosis, he finds the process apparently started in this ileo-cecal triangle, as here the glands show most marked caseation and calcification. He draws a distinction between cases practically with peritonism, having fever, pain, perhaps tenderness and no peritoneal involvement, and other cases with localized peritonitis, adhesions, formation of bands and obstruction. Some of the former cases without peritonitis suddenly develop hyperacute symptoms, suggesting perforation, and yet at operation, no evidence of peritonitis is found, such as softening of the retroperitoneal glands. In favor of the primary origin of this affection is the healthy family history and the previous good health of these patients. According to this table there is no particular age period, an equal number of cases occurring between four and ten, and thirty and forty. He cannot determine that bottle feeding is a factor in children. He mentions the value of the x-ray in diagnosis, provided the glands are calcified. Diagnosis is often extremely difficult or impossible, the symptoms being in some cases only indefinite pain in right lower quadrant, about the navel, streaming to the back, sometimes suggesting stomach or duodenal ulcer; constipation, diarrhea, emaciation, weakness with fever, and no leucocytosis (unless secondary infection has occurred). He believes that extremely careful palpation after free catharsis will enable us to palpate enlarged glands much more frequently than is commonly done, and believes that this primary mesenteric tuberculosis is a frequent cause of run-down condition, otherwise unexplainable. Multiple tumors in the region of the small intestine, if leukemia is ruled out, are almost pathognomonic. Tuberculin may be of value. If local peritonitis and obstructive symptoms develop he of course advises surgery, as he does also if there is any evidence from marked localized tenderness, fever or softening of the glands. He also advises early resort to surgery when enlarged glands can be made out in the ileo-cecal triangle, as well as when a few isolated glands can be palpated in the small intestine mesentery. He advises against operation in general tabes mesenterica, except for special indications, but believes that early operation will prevent a general spreading of the disease from the ileo-cecal triangle and probably later breaking down, when drainage would be necessary.

Wherever possible, he removes a gland without breaking into it. If the gland is broken down, he curettes it out with careful suture, sometimes using drainage. Fifteen cases limited to ileo-cecal region—thirteen smooth recoveries—eleven without drainage. Of eight cases with extensive intestinal resections, six got well. Of the twenty-six cases, four died—15 per cent. Two children died with peritonitis; one of sepsis; one adult of heart failure. Of the 15 earlier cases, 12 remained healed; of the eleven he has four complete recoveries; one case died of recurrence at the end of three years.

In regard to my own experience I have now had about one dozen cases of tuberculosis of the mesenteric glands with or without a chronic appendicitis. They have all been in children. In only two of these cases have the glands broken down so as to form an abscess. I have been inclined to remove as many of the glands as I could conveniently, being, of course, careful to shell them out without injuring the larger vessels of the mesentery, usually not a difficult procedure, and not infrequently an opening is

made clear through the mesentery which is easily closed by sutures. Caseous glands are undoubtedly always tubercular. Some of the smaller glands lying up near the vena cava and aorta it has not been my practice to remove, only those which are undoubtedly tubercular. Only in the two abscess cases has drainage been necessary. In none of them has there been intestinal obstruction. My patients have all recovered and have been free from symptoms since. I have not as yet had any cases like Dr. Parker's, of obstruction, by adhesion of intestine to an inflamed tuberculous gland. Considering the fact that in these cases we do not find any evidence of acute inflammation it is difficult to account for the acute pain, sudden onset and general effects to simulate an appendicitis. The pain is evidently not due to a peritonitis for that is not present. The real source of it must at present remain a mystery. The acute symptoms are not simulated, they actually exist, because we have together with the pain, a rise of temperature and frequent vomiting. It seems to me that may be due to an acute infection through the mucous membrane of a tract of lymphatics already the subject of tuberculosis. However, that is largely a matter for speculation. To call this condition peritonism does not explain it. I have been very much interested in Dr. Parker's presentation of the subject and consider it as one which has not, heretofore, received the attention which it deserves. It is a condition which is sure to confront anyone who operates for appendicitis, and with which he must be prepared to deal skillfully and intelligently. I believe that Dr. Parker's paper will be very useful in calling this subject to the attention of the profession.

PHYSIOLOGY AT THE HARVARD MEDICAL SCHOOL, 1870–1871.

A Part of the Introductory Lecture and Synopsis of the Experimental Demonstrations given by William Thompson Lusk.*

Physiology, coming from two Greek words φύσις and λόγος, literally means an inquiry into Nature, whence we must suppose that long ago, when the ways of Nature were little understood, it was employed in the broad signification of natural science. Indeed, the φυσιολόγος of Empedocles, Lucretius, and earlier Greek writers was in reality a natural philosopher.

As, however, the boundaries of knowledge extended, it became necessary to introduce divisions into science, and the earliest natural distinction that would strike the understanding would be between the laws that govern material bodies and that special class of phenomena, to which we apply the term "life."

We have, accordingly, corresponding to these two classes, from the same word φύσις = nature, physics, applied to the properties of inert matter, while physiology, stripped of its primitive signification has become confined to the study of the phenomena of living things.

Physiology has, therefore, been termed briefly the "Science of Life." It busies itself with the acts, or, as we usually say, the functions of the living organism.

* * *

All our knowledge concerning the existence of the soul is derived from our inner consciousness and from revelation. Hence in the one we employ induction methods and admit nothing that is not based upon direct experiment. In the other we have recourse to deductive reasoning, and insist rightly upon faith as the cardinal means of growth. There is no necessary antagonism between physiology and religion. Such an erroneous idea can only be logically maintained by those who confuse together two distinct ranges of inquiry and attempt to restrict both to the same methods of investigation.

Now let us next consider briefly the value of physiology to the vital powers. If physicians have used heroic measures or infinitesimal agents, if they have sought now to thwart, now to guide Nature, they have in all been faithful in their action to some physiological idea. The old doctor, who reverts regretfully to the bleedings of his youth, and talks of the changes in the constitutions of his patients, and in the types of the disease he treats, is really rendering homage to the potent influence of modern physiology. All this is so trite that I do not need to dwell upon it. What I would especially urge upon you is the value of physiology as a means of discipline. The mere fact that it refuses a priori reasonings, that its methods are experimental, and that its aims are unembarrassed by other motives than that of attaining the truth, make it a most beneficial instrument of scientific training. The history of its discoveries are full of warning against hasty or imperfect generalizations, while its most brilliant results are equally replete with encouragement for the patient but intelligent exercise of the powers of observation.

Physiology is not an offshoot of anatomy. Nothing can be more unsafe than plausible deductions from anatomical structure. It is inverting the natural order to say, here is an organ, let us try and think what is its function. This method led medical men until the time of Harvey to regard the liver as the central organ

* This fragment including the first and last portions of an introductory lecture was recently found among my father's papers. The list of his experiments he gave me many years ago. The course was the first in physiology at Harvard which was accompanied by experimental demonstrations. Dr. Bowditch returned from Europe in 1871 and there was some hesitancy on the part of the authorities as to which man should be appointed to the professorship. This hesitancy caused my father to make arrangements to return to New York. After these arrangements had been made the chair at Harvard was offered to my father and declined by him. My father often instanced this as indicating how trifles might determine careers, and that men should be ready to accept whatever opportunity offers them. To his training in physiology he attributed the success of his book, The Science and Art of Midwifery, in which for the first time in a text-book the phenomena of labor were presented from the standpoint of physiology. Graham Lusk.

of the circulation. We should say, here is a function, come let us discover the organ concerned in its production. Our means of study must be applied, therefore, to living, not to dead tissue. Claude Bernard defines physiology as "experimentation upon living animals." This is in a sense true if we add to those experiments which we control directly, those that are made for us in Nature by disease.

The instruction which we are to give during the coming session will consist to a considerable extent, in virtue of this idea of physiology, in experimentation upon living animals combined, of course, where needful, with the use of such physical and chemical appliances as shall tend still further to throw light upon the points under investigation. The destruction of life which this may involve can hardly be objected to by those who constantly acquiesce in the sacrifice of animals for a much lower purpose viz.: the gratification of the palate. Nor can the charge of cruelty be reasonably preferred, for in anesthetics, a gift for which animals, as well as man, can never be too grateful to Boston, it is in our power to abolish pain. We do not take life wantonly, for mere sport, as many of our summer tourists do, but from a high sense of responsibility toward you as medical students, from an earnest conviction that there are certain physiological processes regarding which you not only need to be instructed, but which at least once you ought to witness for your own selves.

LIST OF EXPERIMENTAL DEMONSTRATIONS.

Lecture I. Specific gravity of the blood. Color. Operation on dog. Opacity. Draw blood corpuscles.
Lecture II. Fats.—Human, hog, mutton and beef fat. Solution of olive oil in ether, add potash. Emulsion of egg and oil. Calcined bone. Costal cartilage fresh and dried. Put fibula in HCl, add ammonia fortis.
Lecture III. (1) Albumen of egg and water, filter. Serum of blood by pipette. Test both with heat. Dissolve coagulated albumen with KaO. (2) Fibrin on sticks. Clot. Show iron in blood with potassium sulphocyanide.
Lecture IV. Show boiled heart. Draw heart.
Lecture V. Show action of heart.
Lecture VI. Action of mitral valves, of semilunar valves.
Lecture VII. Elasticity of aorta. Conversion of intermittent into continuous stream. Show arterial pressure.
Lecture VIII. Rapidity of the circulation.
Lecture IX. Action of intercostals. Action of diaphragm. Bent tube in larynx. Diaphragm of cat.
Lecture X. Experiment of Dr. Doremus, a bird, a mouse, and a frog under a bell glass.
Lecture XI. Changes blood undergoes in respiration.
Lecture XII. Reactions of starch, sugar, etc.
Lecture XIII. Action of saliva on starch.
Lecture XIV. Gastric fistula. Specimen of gastric juice.
Lecture XV. Albumenoses.
Lecture XVI. Pancreatic juice.
Lexture XVIII. Peristaltic action of intestines.
Lecture XX. Osmosis.
Lecture XXI. Glycogenic function of the liver.
Lecture XXII. Make casein, coagulate milk with acetic acid. Show albumen, sugar and chlorides.
Lecture XXIII. Extirpate kidneys.
Lecture XXV. Specific gravity of urine. Show nitrate of urea. Quantitative analysis of urea.
Lecture XXIX. Show bile of man, pig, ox, dog and sheep. Pettenkofer's test. Crystals of glyco- and taurocholate of sodium.
Lecture XXX. Extirpate spleen.
Lecture XXXI. Draw nerve fibers and cells. Demonstrate nerve irritability. Action of direct and indirect currents. Muscle and nerve irritability. Mode of conduction of nerve force.
Lecture XXXII. Dissection of spinal cord in dog.
Lecture XXXIII. Reflex in decapitated frog. Put decapitated frog in solution of strychnine. Break up cord.
Lecture XXXIV. Cerebrum.
Lecture XXXV. Cerebellum.
Lecture XXXVI. Optic lobes.
Lecture XXXIX. Divide 7th pair.
Lecture XL. Divide 5th pair.
Lecture XLI. Divide sublingual.
Lecture XLII. Divide pneumogastrics.
Lecture XLIII. Divide sympathetic.

CHRONIC ALVEOLAR OSTEOMYELITIS (PYORRHEA ALVEOLARIS): ITS CAUSES AND TREATMENT WITH VACCINES.

WITH A BACTERIOLOGICAL STUDY AND REPORT OF ONE HUNDRED FIFTEEN CASES.

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(*Concluded from page* 873.)

We will now discuss the cases under their respective groupings:

GROUP 1.

Incipient Stage (14 Cases).

Description.—The cases grouped under this heading are those where the disease was in its incipiency. The gums and teeth taken as a whole appeared in fair condition, but here and there the gum margin of individual teeth showed signs of inflammation. There was congestion and swelling, distinct discoloration, or slight recession of the gum margin. The gums around the affected teeth were found to have lost their elasticity. In some cases the congestion was so marked that bleeding occurred at the slightest touch. Visible pus was rarely present, but smears made from these affected parts showed microscopically the presence of pus corpuscles, also dead epithelial debris and a large number of bacteria.

The teeth in these cases were not found loose, but the necks of the affected teeth were always found uncleanly, surrounded by food debris and tartar deposits. Some of the patients complained of a local discomfort and a dull ache on mastication, while others were not aware that there was anything wrong with their teeth and gums, except perhaps, for some bleeding caused by the use of the brush.

Bacteriological Findings.—The direct smear findings already described is applicable to this as well as to the other groups. The cultural findings of this group are as follows:

Pneumo. and staphylococcus	10 Cases
Pneumococcus	2 Cases
Staphylo. and streptococcus	1 Case
Sterile	1 Case

The predominating organism culturally was the pneumococcus in chains; the staphylococcus was as a rule less abundant.

The opsonic index was tested in 3 cases; they were all below normal to pneumo.; 2 were found below normal to staphylo. and 2 below normal to colon. One of them was normal to strepto. and colon.

Treatment—The average number of treatments was 6—the maximum being 11 and the minimum 2, at an interval of from once a week to once in two weeks or less often.

The average duration of treatment was 6 1-2 weeks, with a maximum of 12 weeks and a minimum of 3 weeks.

Results.—13 out of the 14 cases were cured, while the remaining one was greatly benefited. Even in the 14th case where only improvement was noted at the time she discontinued treatment, the gums were still in good condition when she was last seen (about a year later). The progress of the disease was apparently checked.

The large percentage of cures (91%) is probably due to the fact that the disease was attended to in the very beginning without giving it a chance to become a real bone infection.

The permanency of the cure can only be judged from the length of time that the cured cases remained cured; two remained cured from 24 to 27 months; 3 from 20 to 23 months, 5 from 10 to 15 months, and 3 from 3 to 7 months.

Systemic Disorders.—In this group of 14 cases 4 suffered of rheumatism and gastro-intestinal disturbances, 1 had rheumatism and asthma, 2 had acne and intestinal fermentation, 1 chronic catarrh and chronic bronchitis, 1 secondary anemia (menorrhagia), 1 had severe headaches (neuralgia?), 1 had empyema of antrum and facial eczema, and 3 had gastro-intestinal disorders. Almost all of them complained of a lack of energy and general debility. They were all relieved of the systemic symptoms while under treatment for their local conditions. This is not my experience alone. Other observers have reported similar results. (Eyer and Payne, Goadby, Lewine Payne.)

Urinalysis.—The urine analysis showed in 9 of the 14 cases an icreased amount of indican, probably due to the intestinal fermentation. In none of these cases was there any albumen or sugar. The reaction was found neutral in 3 cases and acid in 11. The acidity was not markedly abnormal and the only thing that attracts attention in the urinalysis is the indicanuria.

Feces Examination.—The bacteriological findings of the feces in this group was colon (b. coli) in 9 cases; b. coli and diplococci (pneumococci) in 3 cases. No record in 2 cases. We might infer that the diplococci (pneumococci) found in the stool were swallowed with the pus from the gums and escaped the injurious effects of the gastric juice and finally landed in the intestines.

The chemical examinations were done in 9 of the 14 cases; 6 showed undigested meat remains; 2 of these 6 had in addition undigested starch remains. The remaining 3 of the 9 cases had an excess of undigested starch remains.

Carbohydrate fermentation was present in 3 cases, meat fermentation or putrefaction in 4 cases; while 2 others had a combination of meat and carbohydrate fermentation. These cases showed a tendency to an improper digestion of meat foods rather than the starchy foods, in the proportion of 6 to 3. The old idea of eliminating meat in this disease, which was found empirically to be of value, is here corroborated by actual analysis.

Group 2.

Moderately Advanced (16 Cases).

Description.—The cases under this heading are those where the disease was much further advanced than in the previous group. The gums on a whole were found congested and inflamed at the margins. The gums around most of the teeth were either spongy (hypertrophied) or showed marked recession (atrophied). Bleeding was present in all cases at the slightest touch. Visible pus was present in all cases and it could easily be squeezed out by pressure over the affected part. The number of teeth affected in this group ranged from one to several, but the looseness was not very marked and at that only in a few of the teeth. All the patients in this group complained of local discomfort and tenderness and difficulty in chewing. All of them were definitely aware that they had gum trouble which they wanted to have treated.

Bacteriological Findings.—The direct smear findings have already been described. Cultural findings are:—

Pneumo. and staphylococcus	8 Cases
Pneumococcus	6 Cases
Staphylococcus	1 Case
Sterile	1 Case

In this group, as in the preceding, the predominating organism found culturally was the pneumococcus in chains. No definite explanation

could be given for the case that was found sterile culturally.

Opsonic Findings.—9 of the 16 cases were tested opsonically; 7 were found below normal to pneumo. and one above normal. Of these 8 with an abnormal opsonic index to pneumo. 4 were also low to staphylo., one to strepto. and 3 to b. coli. Only one of the 9 cases tested was normal to pneumo. (1.18). The index to staphylo. in this case (Case No. 26, J. M.) was very low (.67). It was also slightly low to strepto. (.73), and normal to colon (1.16).

Treatment.—The average number of treatments in this group was 12 with a maximum of 22 and a minimum of 3 at an interval of 5 days in the beginning to 2 weeks or longer later, according to the amelioration of the condition. The average duration of treatment was 3½ months, with a maximum of 7 months and a minimum of 2 weeks.

Results.—Of the 16 cases fifteen were cured and 1 was benefited. This last patient discontinued treatment at the end of 5 weeks after he had received 4 treatments. The teeth stopped troubling him and he thought that he had done his share towards them.

Of the cured cases, 2 remained cured for from 30 to 36 months, 7 from 20 to 23 months; 4 from 14 to 19 months, and 2 from 8 to 12 months. The process apparently, even in these cases, did not as yet reach to necrosis of bone, at least not to any extensive necrosis. Of course this is merely a supposition as no pathological specimens could have been examined for obvious reasons.

Systemic Disorders.—Of the 16 cases in this group 2 suffered of rheumatism, 4 of rheumatism and gastro-intestinal disturbances, 3 had gastro-intestinal disorders, 1 had asthma, 2 had chronic furunculosis, 1 chronic sore throat, and another had a nervous breakdown (Psychasthenia); 2 had no general symptoms.

The rheumatic disturbances were both muscular as well as joint affections. The pain in these cases yielded promptly to the vaccine treatment, while the ultimate good results may also be ascribed to the overcoming of the local infection.

Urinalysis.—The urine was examined in 13 of the 16 cases. In none was there found any albumen or sugar. The reaction was found acid in all and the indican abnormally high in 4. Here, too, the presence of indicanuria is the only thing to be commented upon.

Feces Examination.—The stool was examined bacteriologically in 12 of the 16 cases. The cultural findings were: pure colon in 9 cases, colon and diplococci (pneumococci) in 3 cases. The pneumococci were found in this group in about the same percentage (33%) as in the preceding group.

The feces were examined chemically in only 5 of the 16 cases, 4 of which showed a great excess of undigested meat remains, while the fifth was found normal in all respects. The fermentation test in these 4 cases was marked by a violent gas fermentation, acid change and a typical picture of carbohydrate fermentation. No comments, of course, can be made from the small number examined.

GROUP 3.

Far Advanced (85 Cases).

Description.—The cases under this heading were the advanced cases with marked suppuration, the symptomatic picture of which is well known to you all. The lesions varied from looseness of a few teeth, with marked recession, sponginess, suppuration, and deep seated sinus formation of the affected teeth up to where all the teeth were found to be affected. In some of the cases there was also present necrosis, destruction of the alveolar process and displacement of the teeth. In a few cases the disease was marked by a series of acute exacerbations of individual teeth with marked swelling and excruciating pain coming on all of a sudden and continuing until the affected tooth was removed. Such patients lost three to five teeth in that way before they were referred for vaccine treatment. The majority of the cases in this group, however, was of the slow insidious chronic type with little pain except on mastication. All of these cases had systemic disturbances of one form or another.

Bacteriological Findings.—The findings of the direct smears of the pus have been described elsewhere. The cultural findings are:—

Pneumococcus (streptococcus lanceolatus pneumoniae)	18 Cases
Staphylococcus	1 Case
Pneumococcus and staphylo.	49 Cases
Pneumococcus and strepto.	3 Cases
Pneumo., staphylo. and strepto.	10 Cases
Pneumo. and M. catarrhalis	1 Case
Staphylo. and M. catarrhalis	2 Cases
Sterile	1 Case
	85 Cases

By far the most frequent organisms according to this table is the pneumococcus in chains either alone or in combination with the staphylo. The combination of the pneumo., staphylo. and strepto. is next in frequency. The other organisms appeared only rarely.

Opsonic Findings.—The opsonic index test was done in 49 of the 85 cases with the following results:—

	Below Normal	Above Normal	Normal	Not Tested	Total
Pneumo. opsonic index	39	2	7	1	49
Staphylo. opsonic index	25	1	20	3	49
Strepto. opsonic index	4	—	32	13	49
Colon (b. coli) index	18	3	12	16	49

The opsonic findings in this group as in the preceding groups were found, with very few exceptions, to corroborate the cultural findings.

Treatment.—The average number of treatments of those that were cured in this group was 17, with a maximum of 38 and a minimum of 3, at intervals of from 4 to 7 days in the beginning up to 2 to 4 weeks or longer later, according to the local amelioration of the disease. The duration of treatment in the cured cases was on an average of 4¾ months with a maximum duration of 9 months and a minimum of 5 weeks.*

Results.—In this group of 85 cases, 37 were cured, 40 were markedly benefited, 4 unimproved and 3 dropped out. One was treated by his dentist and no record obtained from him of the case.

Of the cured cases, 5 remained cured for from 30 to 36 months, 11 from 26 to 29 months, 8 from 20 to 24 months, 9 from 15 to 19 months, and 5 from 5 to 12 months. The improved cases remained improved for several months or years, some getting progressively better even after discontinuing treatment, while others remained stationary.

The percentage of cures in this group is, of course, as would be expected, smaller than in the earlier groups (43%, as compared with 91% in the former two). However, the dentists who sent these cases to me following a prolonged local treatment, have assured me that practically all these far advanced cases would have gone on progressively from bad to worse, until all the teeth would have been lost. Under such circumstances 43% of cured and 47% markedly improved is, I believe, very encouraging.

Systemic Disorders.—45 of the 85 cases suffered of rheumatism, 42 had gastro-intestinal disturbances, 3 chronic furunculosis, 4 post-nasal catarrh and chronic sore throat, 2 cases had diabetes, 3 nephritis; besides, 4 had eczema, 3 urticaria and 1 purpura hemorrhagica. Most of the patients had a combination of two or more of the above systemic troubles.

The cases with rheumatism in this group were of the most advanced types of polyarthritis, arthritis deformans or severe general muscular rheumatism. The severity of the rheumatic symptoms seemed to be in direct relation to the severity and chronicity of the alveolar osteomyelitic condition and the improvement of the two were also in direct relation to each other. Twenty-three of these rheumatic cases were cured, 11 were improved, 1 showed no improvement and 1 slightly improved. The others either discontinued treatment against advice or were beyond any hope at the beginning of the treatment.

* One case in this group is recorded as cured at the end of one weeks after receiving three treatments. This patient had an acute osteomyelitis of the socket of the left lower third molar. The tooth was removed, and the socket curetted. She was brought to me by her physician for vaccine treatment three weeks after the operation. She had a high temperature and felt very sick all over. Locally there was a big hole discharging pus at the place where the tooth had been removed. All the other teeth were loose and pus present around several of them. The gums as a whole were markedly inflamed. At the end of three treatments the whole condition of the gums subsided and the operated socket made an uneventful recovery. When she was last seen, 19 months later (July 10, 1912), the gums were found in healthy condition and no looseness of teeth present.

Almost all of those suffering of gastro-intestinal disturbances were relieved or cured by diet, lactic acid milk and vaccine. The same was true of the eczema, chr. urticaria and chronic furunculosis cases. (See table 3.) Only 6 of the 85 cases showed no general symptoms.

Urinalysis.—The urine was examined in 53 of the 85 cases. Forty-four of these were found acid in reaction, 7 were alkaline and 2 neutral. In 27 of the 53 cases marked indicanuria was present; 3 of the cases showed albumen and 2 sugar.

Feces Examination.—The feces were examined bacteriologically in 52 of the 85 cases, with the following results:—

B. Coli (colon)	39 Cases
B. Coli and diplococci	11 Cases
B. Coli and strepto.	2 Cases

In this group we find in addition to the presence of the pneumococci in the feces also two cases with streptococci. It is difficult to determine what these findings actually mean, but, as said before, it may be supposed that they are an extension of the infection due to the swallowing of the pus.

The feces were examined chemically in 30 of these cases; 19 showed an excess of undigested meat remains. The other 11 showed an excess of undigested starch remains. The fermentation test in 11 of the 19 cases that showed an excess of undigested meat showed putrefactive changes, while the remaining 8 showed a carbohydrate fermentation with marked gas formation. All those 11 cases that had an excess of undigested starch remains also showed a typical picture of carbohydrate fermentation with very marked gas formation.

These findings again seem to indicate as in the preceding groups, the tendency to an improper digestion of meat in the majority of cases (63%). On the other hand, it also shows the presence in the lower part of the bowels in the majority of cases of an excessive flora capable of fermenting carbo-hydrates with the production of gas, which is responsible for the flatulence complained of by so many patients.

GENERAL SUMMARY.

The causes of the disease, we said, were mechanical and infectious. Under mechanical causes I called attention to tartar and calculi, which are by far the most important. To these may be added the careless use of the tooth-brush and infected instruments.

The important infectious agents, we said, are the pus-producing bacteria, such as the pneumococcus, staphylococcus, streptococcus and M. catarrhalis. The disease, we said, is not due in all cases to one and the same organism, but a variety of organisms capable of causing infection. The bacteria are responsible for keeping up the disease, while mechanical injuries are responsible for starting it. The same is true of

the systemic disorders which may play only a secondary part (lowered resistance) in starting this local disease; while after it is once established the systemic diseases certainly play an important part in keeping it up.

The results obtained in this series of 115 cases treated with vaccines are:

	Percentage			No. of Cases		
	Cured	Improved	No Imp.	Cured	Imp.	No Imp.
Incipient Cases (Group 1)	92%	8%	—	13	1	—
Mod. Advanced (Group 2)	93%	7%	—	15	1	—
Far Advanced (Group 3)	43%	47%	5%	37	40	4

(Three cases of the far advanced dropped out and of one no record was obtained.)

The number and duration of treatments of this series were:—

	No. of Treatments			Duration of		
	Average	Max.	Min.	Average	Max.	Min.
Incip. Cases (Group 1)	6	11	2	6½ w.	12 w.	3 w.
Mod. Adv. (Group 2)	12	22	3	3½ m.	7 m.	2 w.
Far Adv. (Group 3)	17	38	3	4¾ m.	9 m.	5 w.

Thus according to the above figures the number of cures, the duration of treatment and number of treatments are in direct relation to the chronicity and severity of the disease, particularly the former, as would be expected.

The frequency with which the most important of the systemic disorders occurred in the whole series is as follows:

	Rheumatism	Gastro-intest.	Skin Affec.	Chr. Catarrh
Incip. Cases (Group 1)	35%	50%	14%	7%
Mod. Adv. (Group 2)	38%	50%	12%	6%
Far Adv. (Group 3)	53%	50%	13%	5%

The rheumatic disturbances are apparently in direct relation to the severity of this disease. They increase both in frequency and severity as the disease goes on. The other important complaints are the gastro-intestinal disturbances and neuralgic pains, so-called. All the patients seemed to be particularly susceptible to acute coryzas or "colds" which were at times sufficiently severe to lay them up in bed.

Various other affections were met with, such as asthma, diabetes (2 cases), nephritis (3 cases), purpura hemorrhagica (1 case), but I feel from their rarity that they were not necessarily related to the chronic alveolar osteomyelitis.

The systemic affections accompanying this disease are of great importance as shown by the above figures. These systemic diseases caused by this slow insidious inflammation and infection of the gums are all ordinarily treated merely symptomatically, while no attention is paid to the local trouble. There is a crying need of getting the medical profession awakened to the consequences of this disease, and to consider no physical examination complete without the routine examination of the gums.

CONCLUSIONS.

1. Pyorrhea alveolaris, so-called, is in reality a *chronic alveolar osteomyelitis.* It should be known and treated as such.

2. The sockets are enlarged medullary spaces of the maxillary bones, while the so-called "peridental membrane" is in reality a ligament which keeps the tooth suspended in the alveolar cavity.

3. The mechanical causes are responsible for starting the disease, while the pyogenic bacteria (pneumococcus, staphylococcus, streptococcus and M. catarrhalis) are responsible for keeping it up.

4. Chronic alveolar osteomyelitis is a specific disease though not in the sense that it always is due to one and the same organism; it is due to a variety of organisms already enumerated.

5. Systemic diseases play only a secondary part in starting the disease, but may be caused by it and in turn become responsible for keeping up the local condition.

6. A great many rheumatic diseases, so-called, also a great many gastro-intestinal affections, are in my opinion directly related to chronic alveolar osteomyelitis (Riggs' disease).

7. The vaccine treatment of this disease, together with the proper attention to diet cures or relieves the systemic diseases, especially the rheumatic affections.

8. Vaccine treatment (immuno-therapy) together with local mechanical treatment yields by far the best results in this intractable disease—CHRONIC ALVEOLAR OSTEOMYELITIS.

ILLUSTRATIVE CASES.*

Owing to the lack of space the following few cases will be cited as illustrating the various groups:

Group 1. Incipient Stage (14 Cases).

April 30, 1910. H. H. Female, 35 years. Gums show general recession, are inflamed and tender, Bleed easily. Bad taste in mouth. Duration, five years. No loose teeth present. Pus only microscopically. Always had attention by dentist (her husband). Cultures showed staphylococcus aureus and chains of pneumococci.

Marked indigestion and stomach distress, rheumatic pains. Treated five weeks (five treatments with autogenous vaccine). Gums not inflamed and feel well. Other symptoms relieved.

(Dentist's report, June, 1912: "Gums look much better, color is good and general condition better.")

Dec. 13, 1910. C. M. K. Female, 28 years. Recession of gums increasing gradually for last seven years. Under dentist's care all the time. Gums slightly inflamed. Bad taste in mouth. Teeth and gums kept scrupulously clean. Cultures were found sterile.

General malaise, severe (neuralgic) headaches. Treated three weeks (three treatments with stock

* A detailed report of the whole series of 115 cases will be published in the *Dental Cosmos*, January, 1913.

pneumo- and staphylo- vaccine). Gums in good condition. Recession checked 20 months. (Dentist's report, "apparently in healthy condition when last examined, March 7, 1912.")

The two cases are typical of the 14 cases of this group. They tell their own story. The second case illustrates the benefit of stock vaccine in the treatment of early cases where no pus is obtainable and an autogenous vaccine can therefore not be made. The stock vaccine, however, must be derived from cases suffering of this disease. The other 12 cases of this group differ from these 2 only in their systemic disturbances, but practically in nowise as far as the gum process is concerned.

Group 2. Moderately Advanced Stage (16 Cases).

July 19, 1910. F. E. K. Female, 33 years. Duration seven years. Gums show recession; are inflamed and tender on mastication. Pus present in sockets of upper bicuspids and molars and lower molars, which are also loose. Cultures showed pneumococci in chains and diplo forms.

General adiposity, intestinal flatulence. Treated six months (15 treatments with autogenous vaccine mixed with stock pneumo. vaccine). Gums healthy: good color. No pus. Other symptoms relieved.

(Dentist's report 16 months later: "No looseness. Gums harder and good color. Slightly more recession than before treatment but seem in healthy state.")

Feb. 17, 1910. F. C. B. Male, 29 years. Gums receded, spongy in places. Bleed easily. Tender on mastication. Pus present in socket of right lower wisdom tooth which is also loose. Cultures showed pneumococci in chains and staphylococci aureus.

Treated nine weeks (12 treatments of autogenous vaccine). This case showed a marked improvement at end of second treatment with vaccine. Discharged cured at end of nine weeks. No recurrence two and a half years. Results very favorably commented upon by dentist.

Aug. 19, 1910. Male. 50 years. Practically all teeth affected of several years' duration. Pus could be squeezed out of several sockets. Gums markedly receded. Several teeth slightly loose. Lost one molar from looseness. Cultures showed pneumo. and staphylococci. Continuous rheumatic pain in back and right thigh. Tired as a rule. Catches cold easily. Intestinal flatulence. Treated seven months (19 treatments of autogenous plus stock staphylo. and pneumo. vaccine). Gums healthy. No tenderness or pus. Teeth tightened up. Rheumatic pain stopped. Feels "quite well." Particularly happy over the relief of rheumatism.

These 3 cases are typical of this group; the remaining 13 cases are practically repetitions of these, both as to lesions and results, a summary of which will be found in the body of the paper under group 2.

Group 3. Far Advanced Stage (85 Cases).

June 8, 1911. W. P. S. Male. 52 years. Gums receded, very tender and spongy. Nearly all teeth affected. Lost 6 from looseness. All the remaining teeth loose. Has difficulty in talking and chewing. Profuse pus discharge present in sockets of all teeth. Duration 11 years. Had constant dental care. Both father and mother had "pyorrhea." Cultures showed pneumo., strepto., staphylo. and many large bacilli (?).

Rheumatism, stomach and intestinal disturbances. Treated eight months (27 treatments of autogenous vaccine). Gums in good condition. Good in color. Firm. No pus or tenderness. Teeth firm. Rheumatism and intestinal symptoms relieved. (Dentist's report one year later: "No bleeding or tenderness. Gums more receded than before treatment, but fine in color and firm, with no pus. One or two teeth loose but only from loss of alveolus before treatment."

The results in this case are not much different from those obtained in other similar cases. It would seem as if the more profuse the discharge the better is the prognosis with vaccine treatment.

Nov. 11, 1911. J. D. Male, 44 years. Gums very sore, very boggy, inflamed and swollen. Bleed easily. All teeth badly affected. Each tooth surrounded with pus. Upper and lower incisors very loose. All others loose. Lost 10 teeth from this disease. Duration "eight years," probably a great deal longer. Cultures showed pneumococci in chains, staphylococci and bacilli.

Rheumatism gastritis and chronic diarrhea. Gums were too sore and teeth too loose for instrumentation when dentist first saw him. After third injection of vaccine gums were sufficiently improved for instrumentaton. Treated three months (13 treatments wth autogenous plus pneumococci and staphylo. stock vaccine). Gums apparently in healthy condition. No pus. Teeth firmer. Rheumatism and gastro-intestinal disturbances relieved by lactic acid milk and diet in addition to vaccine. Has prophylactic treatment once every three to six months.

(Dentist's report one and a half years later: "Gums greatly improved. No looseness or discharge except one or two incisors slightly. No bleeding or tenderness. Firmer but considerable recession.")

This case was the most striking example of what can be accomplished by vaccine treatment independent of local treatment by dentist. Other cases, not as far advanced, who applied for vaccine treatment while the dentist was away on his vacation or before they could get an appointment were markedly improved (in 6 weeks to 2 months) before they had local treatment at all. All such cases helped to establish the value of the vaccine treatment in this disease.

Dec. 19, 1911. C. H. R. Female, 37 years old. Duration 15 years. Gums inflamed, spongy and receded. Very sore and painful. Severel teeth (eight or ten) loose and pus present around them. Lost four teeth from looseness. Cultures showed pneumococci and staphylococci.

Marked general debility, gastro-intestinal disturbances. Treated one month (five treatments with autogenous plus pneumo. and staphylo. stock vaccines). Gums look healthy. No pus. Loose teeth firm. "Feeling fine." No recurrence.

(Dentist report: "This case is rather different from the majority. There has been a serumal deposit on roots which caused acute inflammation with pus and much pain. The tooth would loosen rapidly and have to be removed. No salivary deposits." Present condition: "Gums in good condition. Teeth not loose and no bleeding. Only one place where pus shows at all.")

No further comment is necessary on this case. The marked change in her general condition is worth emphasizing.

These 3 cases represent 3 types of this group, the first being a chronic suppurative type with profuse pus discharge; in the second the sponginess and exudates were more pronounced than the suppuration; and the third, the acute exacerbations seemed to be the most important feature that attracted attention. All the cases of these types did well under vaccine treatment. The other type of cases, where there was little or no pus or those of a gouty nature, although they showed improvement, did not show such good results. A detailed description of each individual case of this group would make an article by itself and has to be omitted here for lack of space. A summary of all the cases and results of the same will be found in the body of the paper under group 3, while a brief case report of all 115 cases will be found in the *Dental Cosmos*, January, 1913.

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THE TREATMENT OF PULMONARY TUBERCULOSIS BY ARTIFICIAL PNEUMOTHORAX, ACCORDING TO THE METHOD OF FORLANINI.

WITH A REPORT OF TWENTY-ONE CASES.

BY GERARDO M. BALBONI, M.D., BOSTON.

(*Concluded from page* 889.)

LUNG ABSCESS.

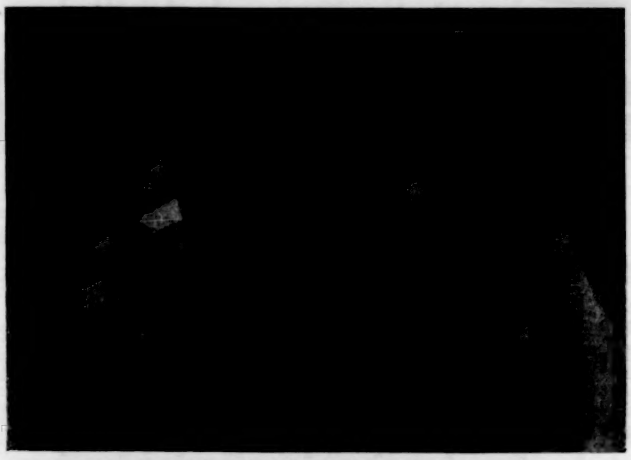
CASE 21. Sebastiano B., 38, male, laborer. February 4, 1912. Lives in the North End, Boston. *Family History*, Negative., *Past History*. Four years ago had bronchitis and was ill six weeks. Seven months ago was ill with bronchopneumonia of right lung one month. The sputum at the time was a thick mucopurulent character negative for tubercle bacilli and positive for influenza. He had a slow convalescence, the cough and sputum gradually disappearing. Denies venereal—moderate drinker. *Present Illness*. Two months now unable to work on account of troublesome cough and large amount of sputum raised, especially on lying down. General weakness and poor appetite. For the last week has been having chills and fever. *Physical Examination*. Temperature 99.5°, pulse 84, respiration 22. Well developed and fairly nourished. Pupils equal and react, reflexes normal. Tongue clean, mouth and teeth in good condition. No glandular enlargement. Skin hot and clammy. *Chest*. Well formed symmetrical apex-beat inside nipple line fifth interspace. Nothing abnormal made out. *Right Lung*. Dullness from apex to lower margin of scapula. Increased vocal tactile fremitus. At a point opposite spine scapula suggestion of amphoric breathing. Coarse moist râles. *Left Lung*. Normal. *Abdomen*. Negative. Hemoglobin, 80%, blood smear negative. Sputum mucopurulent, slight foetid odor. Daily amount, two cupfuls. Microscopic and guinea-pig test shows sputum to be negative to tubercle bacilli. Dr. Wolbach reports the sputum to be composed chiefly of pus. X-ray examination by Dr. Walter J. Todd shows an abscess located between the third and fourth interspace of right side. No evidence of tuberculosis.

TREATMENT.

An autogenous vaccine was prepared by Dr. Albert Steele and used for one month without any apparent benefit. The first two injections of the vaccine caused considerable discomfort, rise in temperature, chills, fever and sweating. One million streptococci to one c.c. Injections were given at three days intervals as follows: First injection 1-10 c.c. Second injection 3-10 c.c. Third injection 1-2 c.c. Fourth injection 3-4 c.c. Fifth injection 1 c.c. After fifth dose continued at 1 c.c. After the second dose there were no untoward symptoms.

ARTIFICIAL PNEUMOTHORAX.

March 2. Introduced 200 c.c. nitrogen gas going into the right interspace midaxillary line. The nitrogen was introduced slowly and stopping at frequent intervals. At the end of the introduction patient complained of faintness, cold sweat appeared over face and gasping. These symptoms lasted about fifteen minutes, gradually subsiding. After half an hour the patient felt well enough to



Case XXI. *Lung Abscess.* Same case after injection of more gas showing greater retraction of lung. Left lung normal.



Case XXI. *Lung Abscess.* No evidence of tuberculosis. Abscess located between second and third interspace right side. Partial pneumothorax right base extending up axillary border.

get up. Complained of tightness of right side and inability to take a long breath.

March 5. Has raised a large amount of foul sputum, two cupfuls, measuring altogether a pint. There is tympany over right side of chest. Moist coarse râles heard in back. Introduced 300 c.c. nitrogen gas with no symptoms whatever. At the beginning of the introduction intrapleural pressure was markedly negative, at the end of the introduction slightly positive.

March 9. The evening following the last injection of nitrogen had a chill followed by sweating and fever. Considerable cough and the raising of two cupfuls of sputum. Has been keeping very quiet. The appetite has improved. On this date Dr. Samuel Robinson saw the case and injected 1000 c.c. nitrogen gas. At the end of the introduction, the intrapleural pressure was 2 cm. water. No untoward symptoms. Marked tympany throughout

(*Continued on page* 932.)

RESUME OF 21 CASES OF PULMONARY TUBERCULOSIS TREATED WITH ARTIFICIAL PNEUMOTHORAX

Case—Beginning of treatment.	Diagnosis.	Sputum.	Remarks.	Results.	Present condition, June, 1912.	Sputum.	Remarks.
1. Josephine A., 29, M. May 5, 1911.	Bilateral.—Moderately advanced — more marked on the left, very slight on the right.	Considerable. Positive.	35 injections. Considerable pain at times. Total amount N. injected, 28,000 c.c.	Amelioration marked from the start. Kept at work. Cough diminishing.	Excellent.— Still under observation. Doing her own work, moved out of town. No tubercle bacilli since Aug., 1911.	None. Guinea pig test negative.	Pneumothorax of left lung. No process in right lung.
2. Vita T., 29, M. May 6, 1911.	Bilateral.—Moderately advanced. — more marked on the left.	Considerable. Positive.	6 injections. Considerable pain. Total amount N. injected, 4400 c.c.	Amelioration marked. Very little cough.	Excellent.—Does her own work. Living in Rockland, Me. Gain in weight.	Very little. Repeated examination negative.	Lung has expanded. Recovery.
3. Giuseppe D'A., 30, S. May 5, 1911.	Bilateral. — Advanced — more marked on the right.	Large quantity. Positive.	50 injections. Emphysema once. Occasionally slight pain. Total amount N. injected, 35,000 c.c.	Gradual steady improvement. Steadily at work since Aug., 1911.	Fair.—Works tearing down buildings. Lives in bad hygienic surroundings. Keeps his weight.	Very little in amount. Positive.	Pneumothorax of right lung. Very little activity on the left.
4. Virginia B., 20, S. June 6, 1911.	Unilateral. — Incipient on the right.	Very little. Negative.	12 injections. No untoward symptoms. Total amount N. injected, 10,000 c.c.	Improvement in all symptoms at once. Worked. No injections since Nov., 1911.	Excellent.—Married last Sept., 1911. 8 months pregnant. Living in good hygienic surroundings.	Repeated examination negative.	Pneumothorax not yet absorbed. Right lung normal.
5. Frank G., 36, M. April 26, 1911.	Bilateral. — Advanced — more marked on the left.	Considerable blood. Positive.	4 injections. Neurotic — considerable pain — difficult patient to control. Total amount N. injected, 2000 c.c.	Symptomatically good. Refused to continue treatment. Entered sanatorium.	Fair.—Very fleshy. Left sanitorium against advice. Has begun to lose weight.	Some. Positive.	Active process in both lungs.
6. Nicholas L., 19, S. April 29, 1911.	Bilateral. — Laryngeal tuberculosis. Advanced— more marked on the left cavity. Pleural adhesions.	Large quantity. Positive.	2 injections. Considerable pain. Emphysema. Total amount injected, 600 c.c.	No change. Throat condition extremely bad.	Died July 15, 1911.		
7. Alphonse R., 42, M. May 12, 1911.	Bilateral. — Advanced — more marked on the left cavity. Pleural adhesion.	Large quantity. blood. Positive.	12 injections. Interrupted treatment. Emphysema once. Total amount N. injected, 8000 c.c.	Good in all symptoms, no blood. Continuously at work.	Good.—Gain in weight. Moved out of town. Continues treatment.	Small quantity. Positive.	Difficult to maintain a proper pneumothorax. Very little activity on right.
8. Ciriaco G., 38, M. Oct. 16, 1911.	Bilateral. — Advanced — marked on the left. Pleural adhesions.	Large quantity blood. Positive.	12 injections. Interrupted treatment. Considerable pain. Total amount injected, 6300 c.c.	Symptomatically good. Has continued steadily at work.	Fair.—Works hard. Very little cough.	Some. Positive.	Pneumothorax complete on the left, very little activity on the right.
9. Nicholas R., 28, M. Oct. 28, 1911.	Bilateral. — Advanced — More marked on the right. Pleural thickening.	Large quantity. Positive.	15 injections. Untoward symptoms three times. Total amount N. gas injected, 9190 c.c.	Slow, steady improvement in all the symptoms. Worked part of the time.	Good.—Worked part of the time. Gain in weight. Moved to Montreal in March.	Very little. Very few bacilli.	At last examination had a complete pneumothorax of right. Little activity on the left.
10. Fred P., 40, M. Dec. 30, 1911.	Bilateral. — Advanced — active process marked on the left cavity. Pleural adhesions.	Large quantity blood. Positive.	15 injections. Very difficult case to treat—some pain. Total amount injected, 8850 c.c.	Slight improvement in general condition. In a runaway accident. Aggravated condition.	Since runaway accident, loss of weight — weakness, cough aggravated.	Large quantity. Some blood. Positive.	Last examination, process active on the right. Partial pneumothorax on the left.
11. Charles F., 24, S. Jan. 27, 1912.	Bilateral.—Moderately advanced—slight process on the left apex.	Considerable blood. Positive.	23 injections. No untoward symptoms. Total amount N. gas injected, 10,910 c.c.	Marked improvement from the beginning. Never lost a day's work while under treatment.	Excellent in every way. Marked gain in weight. Married, June 12th, against advice.	Very slight in the morning. Very few tubercles.	Excellent condition. Process inactive. Moved out of town, May 1, 1912.
12. Manuel D., 21, S. Feb. 12, 1912.	Bilateral. — Advanced — active process more marked on the right. Pleural adhesions.	Large quantity. Little blood. Positive.	29 injections. Fainted once. Emphysema twice. Difficult case. Total amount N. injected, 8050 c.c.	Slow steady improvement in all the symptoms. At 23d injection was able to completely collapse lung.	Good.—Slight gain in weight—is out doors all the time now.	Slight. Positive.	Good — Stronger. Complete pneumothorax of right, slight active process on the left.

13. Antonette Z., 23, M. Feb. 24, 1912.	Bilateral. — Advanced — active process more marked on the left cavity. Pleural adhesions. Tuberculosis larynx.	Large quantity. Positive.	5 injections. Slight discomfort. Emphysema. Total quantity N. gas injected, 2580 c.c.	No improvement. Unable to take proper nourishment on account of throat condition.	Last injection given March 2d. Died April 10, 1912.		
14. Vincent L., 32, M. April 28, 1912.	Unilateral — acute hemoptysis — uncontrolled for 16 days.	Large quantity of blood mixed	3 injections. Considerable discomfort. Dextrocardia. Pressure symptoms — temporary irregular pulse. Total quantity N. gas injected, 3250 c. c.	Immediate improvement. Hemorrhage completely controlled. Bronchitis of right lung one week.	Excellent.—Fever and night sweats, on 7th day normal. Up and about on 15th after 1st injection.	Very little clear. Negative.	Excellent—has complete pneumothorax of left lung. No discomfort.
15. Edward R., 45, M. May 21, 1912.	Bilateral. — Advanced — active process marked on the left cavity, moderate on the right.	Large quantity. Positive.	15 injections. Considerable pain 5th, 6th and 10th injection — improvement. Total amount N. gas injected, 5120 c.c.	Slow, steady improvement in all the symptoms—slight loss of weight at first, then gain.	Satisfactory.—Able to do some work—goes fishing.	Very little. Positive.	Satisfactory, still continues treatment.
16. Vincent B., 43, M. May 22, 1912.	Bilateral. — Advanced — active process marked on the left, moderate on the right.	Large quantity. Positive.	14 injections. No untoward symptoms, steady improvement, slight loss of weight. Total amount N. gas injected, 5020 c.c.	Slow, steady improvement —slight gain in weight.	Satisfactory.—Brighter and happy looking.	Scanty. Positive. Very few tubercle bacilli.	Satisfactory.—Improvement continues. Beginning to attend to work.
17. Eleanora S., 30, M. May 17, 1912.	Bilateral. — Advanced — active process more marked on the right cavity. Pleural adhesion moderate on the right.	Small quantity. Positive.	1 injection. Pain, dyspnea—chilliness 6 hrs. afterward. Subsided next day. Total amount N gas injected, 500 c.c.	Extremely difficult case on account of the pleural adhesions. None.	Moved to the country—unable to continue treatment.	Scanty. Positive.	Recently confined.
18. Salvatore D., 18, S. Dec. 9, 1911.	Bilateral. — Acute process—hemorrhage from left. Trauma.	Large quantity blood.	3 injections. Fever—sweat—extreme prostration—undertaken as a last hope. Total amount N. gas injected, 1500 c.c.	Unsatisfactory.—Unable to control any of the symptoms.	Progressive weakness. Died Dec. 12, 1911.	After consultation treatme nt undertaken as a last hope—progress extremel y unfavorable from the start.	
19. James F. P., 48, M. May 26, 1912.	Bilateral.—Active process more marked on right cavity. Pleural adhesions. Gastric disturbance.	Large quantity. Positive.	9 injections. No symptoms. Emphysema once. Total amount N. gas injected, 3300 c.c.	Gastric symptoms have improved.	†Improvement.	Diminished and activity lessened.	Compare amount of nitrogen gas in cases 19 and 20.
20. Peter W. C., 28, S. June 3, 1912.	Bilateral.—Acute active process marked on the left. Temperature.	Large quantity. Positive.	6 injections. No untoward symptoms. Total quantity N. gas injected, 2900 c.c.	Slow but steady improvement.	†Outlook favorable.	Very little.	
21. Sebastiano, B., 38, M. Lung Abscess.	Abscess—Right Lung.	Large quantity. Foul.	15 injections. Total quantity, 3650 c.c. Pains, chills, fever. Subcutaneous emphysema.	Symptomatic relief. Interrupted treatment. Working.	Satisfactory.	Very little. Not foul.	Satisfactory.—Lives in bad hygienic surroundings.

* Placed under treatment as a last resort.

† Too early to draw any conclusions.

In many cases artificial pneumothorax treatment should be considered as as adjunct, as tuberculin or vaccine treatment is; and that general hygiene, open air, climatic and tonic treatment, systemic rest and good feeling should be strictly enforced.

(*Continued from page 929.*)

right chest, very faint respiratory sounds heard at apex. Coin sound made out throughout right chest. Apex beat one inch outside nipple line. Quality and rate good.

March 12. Cough is very troublesome still. Large quantity of sputum raised, average a cupful in 24 hours. Foul odor has disappeared. Except for cough feels much better. Injected 300 c.c. nitrogen gas. At end of the introduction intrathoracic pressure 6 cm. positive. During a paroxysm of coughing some of the nitrogen gas escaped through puncture wound causing a moderate subcutaneous emphysema.

March 24. Not so well. Has been to an advertising doctor since last injection. Is coughing and raising more. Has chills every other day with fever. Pneumothorax partially absorbed. It reaches up to third costal margin in front. Respiratory sounds well heard from this point upward. Introduced 500 c.c. nitrogen gas. After introduction complained of considerable pain and drawing sensation. Also sensation of fullness throughout right side.

March 27. Cough and sputum have diminished in amount, feeling better. 150 c.c. nitrogen gas injected. Intrapleural pressure at end of the introduction 6 cm. positive. Tympany throughout right lung. Coin sound.

April 2. Cough has diminished considerably and sputum has decreased to about two ounces in the twenty-four hours. It is thin and frothy in character. Sleeps better now, as he coughs very little at night. X-ray by Dr. Walter Todd shows a partially collapsed lung upper portion bound down by adhesions (see illustration). 200 c.c. nitrogen gas injected. No untoward symptoms. Marked tympany throughout right lung.

April 30. Continued improvement. Pneumothorax has been maintained completely injecting from 100 to 150 c.c. every week. Very little sputum and that is frothy in character. Weight 129½ pounds.

May 3. Went to work against advice at his old jub as common laborer.

May 27. Has been steadily at work, feels well. Last night raised half a cup of sputum, which was not foul. Pneumothorax has diminished. Injected 150 c.c. nitrogen gas. Considerable pain felt.

June 10. Has been working hard, and has not come as often as requested for injections of nitrogen. Not feeling so well and cough and sputum again bothersome and increased in amount. His wife says he is very irritable when he comes home from work. Has noticed blood in the sputum for the first time. Dr. Samuel Robinson saw patient again and injected 700 c.c. nitrogen gas. Much pain felt. Advised him to stop work immediately.

June 21. Has not worked since last injection. Feels much better. The cough again has diminished and sputum is in small amount again. The pneumothorax is apparently complete on physical examination. Is going to move to the country.

REMARKS.

Artificial pneumothorax was done in this case after the patient had given a fair trial to other therapeutic measures. The serious obstacles in this case were the insistence on the part of the patient in going to do work unsuitable for his condition as soon as symptomatic relief had been obtained, and the leaving off of treatment at critical periods, this allowing the pneumothorax to diminish in volume. Also adhesions seem to have prevented a complete collapse of the lung, as is shown by the x-ray (see illustration). It is absolutely essential for the success of the treatment that the pneumothorax be maintained of such a volume and tension so as to squeeze out and practically dry the lung of all the secretion. This means the obliteration of the cavity and the keeping its edges together until they have become granulating surfaces and have cicatrized. The treatment has shown its efficiency.

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Clinical Department.

MIGRATION OF FOREIGN BODIES IN TISSUES.

BY HOWARD A. LOTHROP, A.M., M.D., BOSTON.

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THE common foreign bodies which enter and remain in tissues are splinters of wood and metal, needles and bullets. Sooner or later, if not removed early, there is more or less infection around splinters of wood. Because of their shape and size and short stay in the tissues, they remain near the point of entrance. Metallic foreign bodies are less often associated with infection and frequently they may be imbedded for indefinite periods without symptoms. Bullets and fragments of metal stay where they lodge, provided the parts remain aseptic. Suppuration, however, may cause such foreign bodies to change their position, and the most frequent result is that they are discharged through an opening in the skin or, rarely, into some hollow viscus. It is possible for bodies to be carried along suppurating channels for considerable distances and then not be thrown off, although suppuration may cease and all wounds heal.

The phenomena associated with needles and similar metallic substances differ in two respects. As a rule, their entrance into tissues is not followed by suppuration, particularly, if no piece of thread is attached. Furthermore, they may migrate, for one reason or another, from their first resting place. Everyone is familiar with the reports of cases, apparently well authenticated, where needles which have been swallowed have been removed after longer or shorter periods from various parts of the body, including the extremities. In all probability, however, most needles or fragments thereof which have passed through the skin do not move from their first resting place. Muscular action and pressure from without might cause some degree of migration in soft parts, and the needle be forced deeper or perhaps toward the surface. There are few direct channels which invite progress. The course of the foreign body would be deflected by bone and perhaps by fibrous sheaths.

The case here reported is unusual and illustrates the importance of locating a suspected foreign body, particularly a needle, shortly before exploration:

On Dec. 1, 1911, while dusting, a needle entered the base of the right thumb of a young woman. The needle broke and she removed a fragment. A day later she came to the out-patient department of the Boston City Hospital. At that time there was a minute punctured wound at the base of the palmar aspect of the right thumb but no foreign body could be palpated nor was there any pain or tenderness. An x-ray picture taken on Dec. 2d showed a fragment of a needle about one-third of

an inch long imbedded in the soft parts anterior to the semi-lunar bone. There was no clinical evidence of that location, which was considerably internal to the point of entrance. On Dec. 8th, prior to operating, a second picture was taken. This showed a fragment of a needle, of the same size and shape as the one seen about seven days before deeply imbedded in front of the semi-lunar, anterior to the distal end of the first phalangeal bone of the fifth finger. There were neither symptoms nor signs which would indicate the new position of this fragment and there was no longer any foreign body front of the semi-lunar.

Operation: A median, longitudinal incision, about one-half inch long, was made on the palmar aspect of the little finger over the middle phalanx; this was carried through the fascia to the tendon sheath. Search revealed no needle. Hence, the sheath was opened and the fragment was easily found lying loosely on the tendon within the sheath. The wound was closed and a finger splint applied for a few days. An uninterrupted convalescence followed.

The facts show that this fragment of a needle, about one-third of an inch long, entered the radial side of the palmar aspect of the base of the right thumb, as demonstrated by the wound of entrance, and 48 hours later was at about the the same horizontal level on the ulnar side, and one week later was in front of the first phalanx of the fifth finger, the two latter positions demonstrated by the x-ray. Its course was undoubtedly within tendon sheaths. The facts also demonstrate the importance of taking an x-ray picture shortly before the operation for removal. The foreign body should be located in relation to bony landmarks by plates taken in two planes and, if possible, so as to obtain a stereoscopic view. Occasionally, buried needles have given surgeons much trouble to find and search has frequently been abandoned, much to the chagrin of the operator. Success depends upon having recent plates which locate the needle and then upon careful dissection.

Book Reviews.

A Practical Text-book of the Diseases of Women. By ARTHUR H. N. LEWERS, M.D., Lond.; F.R.C.P., Lond.; Senior Obstetric Physician to the London Hospital. Seventh edition, with 258 illustrations, thirteen colored plates, five plates in black and white, and a large number of illustrative cases. New York: Paul B. Hoeber. 1912.

This small text-book of the Diseases of Women has its basis on a wide experience on the part of the author, and contains much valuable material. In the introduction it is said: "*Before* taking a clinical clerkship in the department for the diseases peculiar to women, the student should refresh his knowledge of the relations of the pelvic organs by attendance in the post-mortem room, and by examining for himself the position of parts when the abdomen has been opened and the intestines are held out of the way." Apparently to emphasize this important doctrine, the book contains no anatomical descriptions, thus leaving more space for the presentation of aspects of the subject that are better suited for treatment by text than is anatomy.

The usual range of subjects in a text-book of gynecology is here covered with well distributed emphasis, but unequal excellence of treatment. The text, sometimes discursive, is at other times scarcely more than a catalogue of names. The commendable introduction of case histories has been judiciously performed. History-taking is an art which is acquired only by long practice. To the novice the first half of the chapter on the "Mode of Investigating a Case" is full of valuable suggestions. The second half is of less merit and certain portions, such as the section on directions for passing the uterine sound (p. 25), except the last paragraph, have no place in a modern work on gynecology. The uterine sound should no more be passed by the sense of touch than should the catheter. Also, uterine tents are very rarely indicated; perhaps they would better be discarded entirely in favor of more nearly aseptic methods of dilating the cervix. However, the book has a number of praiseworthy features. It is not large and for the most part presents the latest views on each subject. Occasionally the presentation suggests the addition of recent views, rather than the re-writing of the whole section from the new point of view. The sections on endometritis and metritis are appropriately short in accordance with the clinical unimportance of these diseases. The results of the author's especial interest in cancer is shown in the two excellent chapters on malignant disease of the uterus, the best in the book. Zwanck's hysterophore deserves mention only for the purpose of condemnation. But this work actually describes its use, as do several other books of recent issue. The final chapters are on Disorders of Mictrition and on Malformations and Sterility. There are appendices on the Systematic Treatment of Nerve Prostration and Hysteria, including a description of the Weir Mitchell Treatment, and on Coccygodynia. The work has abundant illustrations throughout.

The Medical Visiting List or Physicians' Diary for 1913. New York and Philadelphia: William Wood and Company. 1912.

The repeated publication of this visiting list demonstrates its usefulness. In addition to the blank pages provided for memoranda of daily visits the book contains a large amount of information regarding matters useful to physicians. This material has been revised for this edition. The binding, as usual, is in flexible leather.



Fig. 1—Showing foreign body at wrist.



Fig. 2—Same as Fig. 1. Lateral view.



Fig. 3—Migration of foreign body to finger.



Fig. 4—Same as Fig. 3. Lateral view.

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SYPHILIS.

At a medical meeting held recently in Boston a prominent physician of the Rockefeller Institute in New York spoke on the "intensive" treatment for syphilis. He described the very thorough methods of treatment employed in that institution and pointed out that although rapid progress has been made during the last decade in knowledge of this disease we are nearly as far as ever from controlling it.

There are few diseases so well understood today as syphilis and fewer for which we have such reliable means of diagnosis, such powerful remedies and so good a method of testing for complete cure. The cause of the disease and also the modes of transmission are well known, but syphilis remains a serious menace even to the most virtuous individuals of all classes.

If syphilis were regarded simply as an infectious disease a campaign would have been waged against it long since. Syphilis is too often regarded merely as the wages of sin and the danger from it to the community is overlooked. We should not think of syphilis as due to crime but rather should appreciate the glaring facts that many contract it innocently and that our asylums are filled by a stream of unfortunates whose ailments are the result of syphilitic infection. There they remain, year after year, a heavy charge upon the state. Economically considered, here is an enormous waste which the public should appreciate and should endeavor to minimize. From the humanitarian standpoint the suffering traceable to syphilis is appalling.

The persistence of this evil is due in great measure to ignorance of its extent and to lack of appreciation of the facts, therefore it cannot be too strongly urged that syphilis is an infectious disease demanding systematic work for its prevention. The problem as to what should be done cries aloud for solution and obstacles appear which do not hinder similar work against other diseases.

It is said, for example, that if syphilis were added now to the list of diseases reportable to health authorities, syphilis as a diagnosis would, for obvious reasons, become rare. If not feasible to begin a campaign in this way an approximate estimate of the morbidity from syphilis might be made for hospital statistics and on this basis means might be afforded for thorough treatment of syphilitics at the public expense. When this has been done and when people generally assume a more charitable attitude toward these unfortunates, syphilis might be made a reportable disease not in theory but in fact.

Thorough treatment of syphilis according to present day standards is vastly different from the methods of the past, but few physicians have had the opportunity to become skilled in the newer methods, few of our charity hospitals are equipped to carry them out systematically over long periods of time and some hospitals are forbidden to treat syphilis as such in their wards. Consequently, syphilitics rarely receive the best treatment even if able to pay for it and, owing to the expense, many are debarred altogether from receiving adequate care.

The results are that individuals are incapacitated who might otherwise be earning a living; that children inherit a disease from which they should have been protected; and that communities suffer large financial losses directly and indirectly owing to the neglect of syphilis.

From this standpoint it is apparent that the public should know the facts about syphilis and that steps should be taken by communities in their own interest to prevent the spread of the disease.

THE NEW IS THE FORGOTTEN.

People are cured of tuberculosis nowadays by the hygienic treatment—rest, pure air, nourishing diet; with last (and least) medication, not routine, but addressed to the individual's symptoms. We speak of it as the "modern" cure of

consumption, whereas it is at least as old as Nero. For the physician Celsus, who flourished in the era of that potentate, advised anyone with a cough that would not down, a fever, and was losing flesh, to get him a cow, take that blessed provider to the top of a mountain, and live there "on the fruit of that cow." For many centuries, it would seem, that kind of treatment was forgotten, until Sydenham in the seventeenth century, with some of his colleagues, *thought* fresh air was good for the consumptive. It was left to Bodington to *prove* that fresh air (with its hygienic adjuncts) is curative of phthisis.

In 1840 George Bodington, an obscure country practitioner, living in Sutton Coldfield, Warwickshire, England, published an essay on "The Cure of Pulmonary Consumption on Principles Natural, Rational and Successful," in which he dwelt on the importance of a generous diet, fresh air day and night (the twenty-four hour cure), with systematized general treatment. He insisted absolutely upon fresh air, declaring that cold is never too intense for a consumptive patient (a statement since abundantly demonstrated not only for tuberculosis, but for all acute fevers as well). Bodington established in Sutton the first sanatorium in the world on the principles he set forth, and for several years previous to the appearance of his essay he had here practiced these principles and had effected many cures. However, upon their publication, his views met with the bitterest and most contemptuous opposition; he was regarded as a lunatic, and his patients driven from his sanatorium, which he then turned into an asylum for the insane. How many of his persecutors took advantage of the change is not related.

In 1885 Dr. Henry McCormac of Belfast published a book on somewhat similar lines and had "to bear every kind of persecution to which a man in his position could be subjected." In 1861 he advocated what are now established principles in a paper on the "Absolute Preventability of Consumption"; and at about this time the same doctrine was preached by Dr. Bennett of Mentone and by Sir Benjamin W. Richardson, who embodied his views in "A Sanitary Decalogue."

Some years after Bodington's essay appeared, Dr. Henry Brehmer, being convinced by the ideas of that same obscure country doctor, founded upon them in 1854 at Goerbsdorb, in Prussian Silesia, the now civilization-wide sanatorium treatment of tuberculosis. Like Bodington, he had to meet much ridicule and opposition but, being made of quite invincible stuff, a very stubborn Teuton, he persisted, and succeeded finally in convincing the world of the soundness and importance of the methods he elaborated.

Brehmer, like many another worker in this field, was earlier in his life a consumptive; having triumphed in his own body over *The Captain of the Men of Death*, he and his colleagues—Rohden, Dettweiler and Otto Walther in Germany, Sir Hermann Weber in England and Trudeau in America—have established beyond all peradventure the value of the open air treatment of tuberculosis.

MEDICAL NOTES.

PREVALENCE OF PELLAGRA IN GREAT BRITAIN.—Within the past few years, the greatly increased interest in the study of pellagra has led to the discovery that it is far more widely prevalent than was formerly realized. Recent investigations by Dr. Sambon in Great Britain indicate that the disease is endemic in Fifeshire, Forfarshire, Aberdeenshire, the Shetland Isles, Essex, and the Thames valley.

NEED OF WOMEN PHYSICIANS AND NURSES IN ASIA.—It is perhaps not generally realized that there is a definite need of women both as physicians and as nurses in medical missionary work in Asia. Circulars recently issued by the executive committee of the student volunteer movement for foreign missions announce that women physicians are wanted at Jen San, in Korea, and at the Mary S. Ackerman Hoyt Hospital and Dispensary, in Jhansi, India. Trained women nurses are also needed at the Hospital for Women and Children, Madura, South India; at the McLeod Hospital, Innvil, Ceylon; at the Anatolia Hospital, Marsovan, Asiatic Turkey; at the Talas Hospital, Cesarea, Asia Minor; and at the Azariah Smith Hospital, Aintab, Central Turkey.

NEW ENGLAND.

VIGOROUS CENTENARIANS.—Richard Powers, of Lancaster, Mass., who is said to have been born on Nov. 26, 1810, celebrated recently his one hundred and second anniversary. Except

for some deafness, his health is excellent, and he chops the household kindling wood daily.

Mrs. Lucy W. Keyes, of Cambridge, Mass., is said to have been born at Brighton, Mass., on Dec. 6, 1812. She is in excellent health, and celebrated recently her supposed centennial anniversary.

New Hampshire Memorial Hospital.—The recently published sixteenth annual report of the New Hampshire Memorial Hospital for Women and Children, at Concord, N. H., records the work of that institution for the year ending Aug. 31, 1912. During this period 229 patients were treated in the hospital, and three pupils were graduated from its training school for nurses.

Scarlet Fever in Lowell.—On account of the prevalence of scarlet fever at Lowell, Mass., all public festivals and gatherings have been forbidden by the Board of Health in that city during the Christmas season. It is reported that over 400 cases have occurred since Aug. 1, of which about 160 still remain.

Shellfish Laws in Connecticut.—Report from Bridgeport, Conn., on Dec. 5 states that the Connecticut Shellfish Commission has recommended the adoption in that state of regulations, similar to those obtaining in Rhode Island, relative to the inspection and sanitation of oyster-opening establishments. To prevent the spreading of typhoid and other infections, it is urged that such establishments should be under the direct supervision and control of the State Board of Health.

NEW YORK.

Juvenile Court as a Clinic.—It is announced that a complete reorganization of the juvenile courts of the city is to be effected the first year. A single judge sitting in one court throughout the year, a squad of twenty trained probation officers, and an elaborate new system of keeping the records of child offenders are the chief features of the contemplated plan. It is probable also that a clinic will be established in connection with each court for the examination by experts of defective children, though the adoption of this measure will have to be the subject of additional legislation.

Health Exhibit for Negroes.—With the cooperation of the New York Child Welfare Committee, the National Association for the Advancement of Colored People, the National League on Urban Conditions among Negroes, and many of the physicians, clergymen, teachers, business men, and settlement workers of the vicinity, a health exhibit was held in the Henrietta School, West 63d Street, from December 12 to 18, for the benefit of the large population of negroes residing in the blocks just north of 59th Street, on the west side of the city. In connection with the exhibit, physicians and nurses were present at the daily meetings, afternoons and evenings and gave information regarding tuberculosis and other infectious diseases, as well as the essentials of healthful living, and advised mothers as to the proper care of their children.

The Condition of the Poor.—In the sixty-ninth annual report of the New York Association for Relieving the Condition of the Poor, just issued, it is stated that the giving of more adequate relief, especially food, the better care of the sick, and the increased cost of living were responsible for the Association's spending considerably more than in 1911 to rehabilitate practically the same number of families. For the mere necessaries of life furnished to the poor it expended $130,929, or $45,000 more than was contributed by the public for the organization's relief and general work, including an increase of $22,000 for groceries and $13,000 for milk. Inadequate relief in any form for those suffering from destitution, the report says, is as harmful as inadequate care for those suffering from disease. Greater congestion of the poor in certain localities was found to be due to the higher cost of living, particularly to higher rents, and where accommodations were scarcely requisite for one family from a sanitary point of view, additional lodgers were frequently crowded in to help meet the increased expense.

Recent Charitable Bequests.—Under the will of the late Morris Loeb, formerly professor of chemistry in Columbia University, New York, $500,000 is left to Harvard University, subject to the life interest of Mrs. Loeb, for the advancement of physics and chemistry, and $250,000 to the Solomon Betty Home for Convalescents. To the American Chemical Society is given $25,000, to be held by it as a special fund

the income of which is to be used for the establishment or maintenance of a chemical-type museum, either in connection with the Chemists' Club of New York, the National Museum in Washington, or the American Museum of Natural History in New York—preference to be given in the order named. The chief object of this museum is declared to be preservation of all new substances described as the result of chemical research, either by obtaining the same by gift or purchase from the discoverer or by causing the same to be prepared in sufficient quantity according to the discoverer's published directions; all for the purpose of comparison by subsequent observers. After the death of Professor Loeb's widow practically all his estate, which is estimated to amount to several millions, is to go to public or educational and charitable institutions.

By the will of the late Peter Reid of Passaic, N. J., $340,000 is left to religious and charitable objects. Of this amount the Passaic General Hospital is to receive $200,000 as a trust in perpetuity, the income from which is to be used for the maintenance of the hospital; $50,000 is assigned to the Passaic Home and Orphan Asylum, under the same conditions; and to St. Mary's Hospital, Passaic, is given the income of $20,000 for five years, at the expiration of which time it is to receive the principal.

BABIES' WELFARE ASSOCIATION.—The Babies' Welfare Association, which began its work in June last, became a permanent organization on December 12, at a meeting held at the New York Academy of Medicine. Mrs. J. Borden Harriman was elected president and Dr. Ernst J. Lederle, Health Commissioner, honorary president, and twelve vice-presidents, each representing some society or other organization, were chosen. Among these are Dr. Abraham Jacobi and Ira S. Wile, Cardinal Farley, and Joseph H. Choate. Among those on the executive committee are Dr. S. Josephine Baker, Chief of the Division of Child Hygiene of the Health Department, Dr. Godfrey R. Pisek, Adjunct Professor of Pediatrics in the New York Post-graduate Medical School, and Dr. Henry Fleischman of the Educational Alliance. A report was read by Dr. Baker, in which it was stated that up to this date there have been 600 fewer deaths of infants under one year than in the corresponding period of 1911; a result which she attributed in great part to the efforts of the various organizations working in co-operation under the general direction of the Association. There are seventy-two organizations represented in the Association, and its headquarters are in the Health Department building, at Centre and Walker Streets.

A CLEARING HOUSE FOR DEFECTIVES.—At a meeting of the Women's Municipal League on December 12 it was announced that a sufficient amount had been subscribed by a number of wealthy ladies to insure the effective working for some time at least of the new Clearing House for Defectives, which was established in connection with the Department of Public Charities after the attempt upon the life of ex-President Roosevelt. It is the purpose of the clearing house to give a careful examination of defectives of all ages brought to its attention and to see that those in need of restraint or of hospital treatment are sent to the proper institutions, while those who are likely to be benefited without institutional care are to receive immediate medical treatment by competent specialists. This new institution is a further development of the work which has been conducted for sometime past by Dr. M. G. Schlapp and his assistants, in his neurological clinic at the Post-graduate Medical School, among defective children sent by the Charities Department for examination. Commissioner Drummond of this department has stated that the fund which has now been contributed, while ample for present needs, will have to be supplemented by more means in order to place the clearing house upon a permanent basis. "But," he says, "we are not going to stop until we have made a record of all mentally defective persons, and especially children, in this city, and eventually in the state, with the state's co-operation. The defectives will be received and examined from whatever source they come. Already the Charity Organization Society, the Association for Improving the Condition of the Poor, the Society for the Prevention of Cruelty to Children, the Children's Court, a number of churches, and many settlement workers are referring defectives to us for examination. One of the things I hope for as a result of the establishment of this clearing house will be such a continuous and thorough study of defectives on the part of so many physicians that we will perhaps learn much more than we now know about the causes and the cure of such conditions."

Home for Incurable Cancer.—The new St. Rose's Free Home for Incurable Cancer, an institution founded by Mrs. Rose Hawthorne Lathrop, and largely maintained by her efforts, was formally opened on December 15 by Cardinal Farley. The home is under the management of the Sisters of St. Dominic, and the new building, which is located on the East River, fronting upon Corlears Park, will accommodate more than one hundred patients.

New Hospital for Ruptured and Crippled.—The New York Society for the Relief of the Ruptured and Crippled celebrated its fiftieth anniversary by officially opening its large and beautiful new hospital on East 42d Street on December 16, when addresses were made by Prof. William Church Osborn, president of the society, and Dr. Virgil P. Gibney, surgeon-in-chief.

Gift to Colorado College.—Mrs. A. D. Juillard of New York, who is well known for her munificent gifts to benevolent objects, among which is the floating hospital now used by St. John's Guild, has just presented $100,000 to Colorado College, at Colorado Springs, for a new gymnasium to be erected as a memorial to her father, the late Frederick H. Cossitt.

Smallpox Cases in Delaware County.—For some time past the cases of smallpox occurring in New York State have for the most part been of a mild type, and when, recently, the disease appeared in Delaware County considerable doubt regarding the diagnosis arose in the minds of the laity, owing to its general light character; so that the energetic efforts of the local health officers to control the situation and prevent the spread of the infection gave rise to considerable dissatisfaction among the residents. The director of the Division of Communicable Diseases of the State Department of Health then visited the locality, and, finding several cases of well-marked smallpox and a number of mild, atypical cases of the disease, all of which had been fully isolated, he complimented the health officer on his prompt and efficient action, especially in view of the fact that there had been a widespread exposure of the population at a public gathering where several patients in the eruptive stage of the disease were present.

Current Literature.

Medical Record.

December 7, 1912.

1. Mans, L. M. *The Sanitary Conquest of the Philippine Islands.*
2. Weisse, F. S. *A Study of Chest and Abdominal Measurements in Relation to Build.*
3. Cumston, C. G. *Appendicitis in Infancy and Early Childhood.*
4. Ballenger, E. G., and Elder, O. F. *The After Treatment of Syphilis.*
5. Konkle, W. B. *Le Charlatanisme de l'Exactitude.*
6. Delavan, D. B. *Paralysis of the Right Recurrent Laryngeal Nerve from Accidental Trauma.*
7. Wiener, A. *Report Upon a Case of Acute Bulbar Palsy, with Autopsy and Histological Findings; Type: Anterior Poliomyelitis.*
8. Cunningham, W. P. *Psoriasis—A Neurosis.*

New York Medical Journal.

December 7, 1912.

1. Hemmeter, J. C. *Tendencies of Modern Physiological Discipline in Medical Schools.*
2. Burr, C. W. *Spinal Ataxia in the Aged.*
3. Harbridge, D. F. *Ocular Manifestations of Angiosclerosis.*
4. Knapp, M. I. *The Newer Teachings of the Diseases of the Alimentary Canal.*
5. Holliday, G. A. *Gonorrheal Arthritis.*
6. Yates, D. C. *The Residual Ear.*
7. Flower, M. A. *Intestinal Obstruction and Volvulus Complicating Pregnancy.*
8. Rabinowitsch, H. *The Relations Between Doctor and Patient.*
9. Edson, A. W. *The Education and Training of Feeble-minded Children in the Public Schools.*
10. Stewart, G. N. *The Rate of Blood Flow and the Vasomotor Reflexes in Disease.*

The Journal of the American Medical Association.

December 14, 1912.

1. *Carrel, A. *Visceral Organisms.*
2. *Janeway, T. C. *A Study of the Causes of Death in One Hundred Patients with High Blood-Pressure.*
3. Beck, H. G. *Duodenal Medication of Ipecac in the Treatment of Amebic Dysentery.*
4. Newton, R. C. *Recent Hygienic Improvements in Dairying.*
5. Head, J. *A Study of Saliva and Its Action on Tooth Enamel in Reference to Its Hardening and Softening.*
6. McConnell, J. W., and Spiller, W. G. *A Clinico-pathologic Study of Carbon Monoxid Poisoning.*
7. Murphy, J. B. *Safety-Razor-Blade Scalpel.*
8. Todd, G. M. *Cleft Palate Needle-Holder.*
9. Dickinson, R. L., and Truslow, W. *Averages in Attitude and Trunk Development in Women and Their Relation to Pain.*
10. Bowditch, V. Y., and Griffin, W. A. *After-Results in Tuberculous Patients Treated During the Years 1891-1911 at the Sharon Sanatorium.*
11. *Lovelace, C. *The Etiology of Beriberi.*
12. Polak, J. O. *A Further Study of the End-Results of the Conserved Ovary.*
13. Davenport, C. B. *Heredity in Nervous Disease and Its Social Bearings.*

14. FRANK, P. *Adams-Stokes Disease.*
15. PHILLIPS, J. *Prevalence of the Heroine Habit, Especially the Use of the Drug by Snuffing.*
16. LAMBERT, R. A. *Demonstration of the Greater Susceptibility to Heat of Sarcoma Cells as Compared with Actively Proliferating Connective Tissue Cells.*
17. SHARP, H. A. *Primula Dermatitis; Its Occurrence in Rural Districts.*
18. HORSLEY, J. S. *Note on a New Method of Suturing Blood Vessels.*
19. EDWARDS, E. G. *Report of Death from Unrecognized Duodenal Ulcer Following Operation for Cholecystitis.*

1. Carrel has succeeded in removing the heart, lungs, diaphragm, stomach, liver, pancreas, spleen, kidneys and small intestine from cats en masse and by means of transfusion, artificial respiration and feeding has kept these visceral organisms alive from six to over thirteen hours properly functionating. This remarkable piece of work promises to open new possibilities in physiological research.

2. Janeway finds that the early occurrence of dyspnea whether on effort or of the paroxysmal type in a patient with high blood-pressure indicates marked danger of cardiac insufficiency. In such patients the disease, must be treated as a cardiac disease, especially by safeguarding methods. Anginoid pain even when of marked severity occurring on exertion on persons with high blood-pressure does not make the prognosis worse than do other cardiac symptoms. The majority of these patients will not die in an anginal paroxysm. Complaint of polyuria, nocturnal frequency, marked headache or of visual disturbances by a patient with high blood-pressure, especially in those under fifty years of age should make the prognosis very guarded, since uremia is a frequent mode of termination in such cases.

11. Lovelace denies that beriberi is due to the consumption of polished rice or to the absence of protein in the diet of those whom it attacks.

[E. H. R.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

DECEMBER 12, 1912.

1. *BOGGS, T. R., AND GUTHRIE, C. G. *The Bence-Jones Proteinuria in Conditions Other Than Myelomatosis. An Instance Associated with Metastatic Carcinoma.*
2. *LISSER, H., AND BLOOMFIELD, A. *Further Observations on the Carcinoma Skin Reaction.*
3. POHLMAN, A. G. *On the Causes of Birth.*
4. BEAN, R. B. *Morbidity and Morphology. A Composite Study of the Incidence of Disease and Physical Form in New Orleans, La.*
5. EDSON, C. E. *The Last Illness of Louis XIV.*

1. Boggs and Guthrie here describe the discovery of the Bence-Jones protein and review the literature on the subject especially those few cases in which it has occurred in conditions other than myelomatosis. They give the details with excellent plates of a case of their own in which this protein was found in metastatic carcinomatosis. In a table they give 65 cases of diseased bone involvement without Bence-Jones proteinuria, showing that extensive bone and marrow disease may exist unassociated with this protein. They do not believe that this body is a specific derivative of a specific pathological process, but rather that it is a product of endogenous metabolism analogous to cystinuria and alkaptonuria. It is possible and even likely in their opinion that the bone marrow has some function in connection with this endogenous metabolism of proteins.

2. Lisser and Bloomfield report further work on the carcinoma skin reaction. This consists of injecting into the forearm *under* not *in* the skin 5 minims of a 20% suspension of washed human red blood corpuscles obtained from a normal healthy individual. They describe the technic of preparing the washed corpuscles, which are never used after being 24 hours old. The reaction consists of an irregular oval area from 1 x 2 to 3 x 5 cms. with a well defined margin. The color varies from brownish red to maroon. It is distinctly raised. When it disappears it leaves a flat yellowish or greenish discoloration. It begins to appear between 3 and 5 hours after injection and reaches its height in 6 to 8 hours. Out of 56 verified cases of malignant disease, 66% gave a positive reaction. In 10 cases of malignant disease tested after an operation supposed to be curative 100% were negative. In 94 control cases 91.6% were negative. Among the non-cancer cases giving positive reaction were gall stones, chronic appendicitis, tuberculosis of breast and purpura.

[J. B. H.]

THE INDIAN MEDICAL GAZETTE.

NOVEMBER, 1912.

1. ROGERS, L. *Sixty Cases of Amebic Dysentery Illustrating the Treatment by Ipecacuanha and Emetine, Respectively.*
2. CHATTERJEE, G. C. *Therapeutic Use of Tuberculin in Tuberculosis.*
3. HEFFERNAN, P. *The Voluntary Boarder.*
4. PEDLEY, T. F. *Treatment of Smallpox by Tincture of Iodine.*
5. *COOK, L. *A Developmental Defect.*
6. STEEN, R. *A Case of Multiple Hydatid Infection of the Abdominal Viscera.*
7. KENNEDY, R. S. *Some Notes on an Epidemic of Dengue-Form Fever Among Indian Troops, Calcutta.*
8. THOMPSON, C. M. *Prostatectomy.*

5. Cook reports a case of unilateral congenital absence of kidney, ureter, and uterine appendages, demonstrated at autopsy.

[R. M. G.]

THE LANCET.

NOVEMBER 23, 1912.

1. *POWELL, R. D. *A Lecture on the Rôle of the Cardio-vascular System in Pulmonary Tuberculosis.*
2. *LEWIS, T. *A Lecture on the Clinical Significance of Different Forms of Regular Tachycardia.*
3. GREIG, E. D. W. *Note on the Occurrence of the Cholera Vibrio in the Biliary Passages.*
4. MEGAW, J. W. D. *Note on Maj. Leonard Rogers' Method of Treatment of Asiatic Cholera.*
5. *PARKINSON, J. *Erythemia. With an Account of Six Cases.*
6. ELMSLIE, R. C. *The Varieties and Treatment of Lateral Curvature of the Spine.*
7. CAMERON, J. M. *Purpura Fulminans.*
8. TATLOW, E. T. *Jejunostomy in Combination with Anterior Gastro-enterostomy in the Treatment of Chronic Gastric Ulcer.*
9. JELLINEK, S. *The Dangers of Electricity from the Clinical, Forensic and Hygienic Points of View.*

1. Powell after first speaking of the destruction of blood vessels in tuberculous lesions and showing specimens of this, goes on to consider the relation of pulse rate to blood-pressure, showing in tabular form the low blood-pressure of 80-110 with high pulse in active disease and the much higher and normal pressure in quiescent conditions. A rise in pressure he considers a favorable sign in prognosis except in chronic advanced types. As far as the heart itself is

concerned, he believes that consumptives on the whole are much better off in this regard than usually given credit for. In the contracted and fibroid lung there is often marked cardiac irritability; this is due to marked changes in shape, size and position of the lung with formation of adhesions, pressure on the heart, etc.

2. Lewis's three types of regular tachycardia: (*a*) regular tachycardia of physiological type, (*b*) regular tachycardia of pathological type, such as simple paroxysmal tachycardia and (*c*) auricular flutter. The recognition of these various types he discusses in a detailed and interesting manner, as shown by effects of change of position, exercise, normal or abnormal electrocardiograms, etc. The treatment of this condition naturally depends upon the cause. The immediate treatment of simple tachycardia is expectant and symptomatic; the condition of pathological forms as a whole is largely governed by the condition of the heart between paroxysms. There are numerous useful tables in the article, which is one of distinct practical value.

5. This is a detailed discussion and description of six cases of this interesting condition. [J. B. H.]

November 30, 1912.

1. *Allen, H. T. C. *A Lecture on the Relation of Pleurisy to Tubercle.*
2. *Mercier, C. *Drunkenness and the Physiological Effect of Alcohol.*
3. Wilson, T. *Cysts of the Vermiform Appendix. A Contribution to the Knowledge of Pseudo-Myxoma of the Peritoneum.*
4. Eden, T. W. *A Case of Pseudo-Myxoma of the Peritoneum. Arising from Perforation of a Gelatinous Ovarian Cyst and Associated with a Similar Cystic Disease of the Vermiform Appendix.*
5. Panton, P. M., and Tidy, H. L. *A Note on the Occurrence of the Colon Bacillus in the Blood.*
6. Jones, K. H. *Obstructive Jaundice Relieved by Operation.*
7. *Reade, A. G. L., and Coley, F. G. *The Value of X-rays in the Diagnosis of Tuberculosis in Children.*
8. Anderson, J. F., and Frost, W. H. *Transmission of Poliomyelitis by Means of the Stable Fly.*

1. Allen discusses in an interesting way from the clinician's standpoint the relation of pleurisy to tubercle. He first speaks of "elusive apical râles" as important in the diagnosis of tuberculosis and leading to it and then devotes much space to a consideration of idiopathic pleurisy. He does not go as far as most observers in this country, who are apt to consider idiopathic pleurisy as tuberculous and to treat it as such until the contrary is proved. He gives many statistics bearing on the subject. He advises against incision in cases of effusion but does not see that "tapping" does any harm. As to cyto-diagnosis, here again he differs from our opinion in putting little or no value on a large percentage of lymphocytes. He speaks of the guinea-pig test as by no means infallible, while digesting the clot is of value in a few instances. His views as to the route of invasion of the pleura seem vague; his remarks on the rôle played by bronchial and cervical glands are of interest; he emphasizes the part played by the tonsils. He urges sanatorium treatment in all these cases. The paper is well worth reading.

2. Mercier in a general article on alcohol and its effects goes over the general situation as regards England and alcoholism and rather tends to support the view that the situation is not a bad one, that the nation is now a sober one and that alcohol has a very definite place aside from its therapeutic effects. The article is interesting and entertaining and, furthermore, is backed up with much common sense.

7. Reade and Coley describe that class of children who are pale, anemic, ill-nourished, etc., known occasionally as "pretubercular," a very misleading term. They call attention to the value of x-ray in making a definite diagnosis in these cases and the frequency with which enlarged bronchial glands are discovered by this means. They emphasize the work already done by Jordan on this subject.

[J. B. H.]

British Medical Journal.

November 23, 1912.

1. *Branson, W. P. S. *A Clinical Study on the Avenues of Rheumatic Infection.*
2. Fraser, J. *A Possible Test in the Differentiation Between Human and Bovine Types of the Tubercle Bacillus.*
3. *Sutherland, H. *The Soil and the Seed in Tuberculosis.*
4. Cruickshank, R. W. *A Note on Rat-bite Fever, with Report and Temperature Chart of a Recent Case.*
5. Parkinson, C. H. W. *A Ruling Habit Strong in Death.*

The British Medical Association.

Section of Neurology and Psychological Medicine.

6. Reynolds, E. S. *Discussion on the Diagnosis and Treatment of Compression Paraplegia.*
7. Clarke, J. M. *Tumor of the Anterior Part of Corpus Callosum Extending into the Left Frontal Lobes Motor Apraxia.*
8. Alexander, W. *The Nature and Treatment of Epilepsy.*
9. *Smith, W. M. *On the Use of Brain Extract in the Treatment of Various Forms of Insanity.*
10. Nabarro, D. *The Results of the Wassermann Reaction in 150 Cases of Mental Disease.*
11. McKenzie, I., and Marshall, R. M. *Observations on the Nature of Dementia Præcox.*
12. Schofield, A. T., and Leslie, R. M. *Psychasthenia.*
13. Miller, H. C. *Re-education of the Attentive Control.*
14. McDowall, C. *The Nuclei of the Neutrophile Cell in Acute Insanity.*

Section of Diseases of Children.

15. Turby, A. H. *An Operation for Webbed Fingers.*
16. Smith, J. S. K. *Some Principles in the Treatment of Lateral Curvature of the Spine by Exercise.*

1. Branson believes that chorea and rheumatic fever are due to one and the same infecting agent and that upon a specifically predisposed central nervous system this infecting agent produces the phenomena known as chorea. The commonest avenue of infection is the tonsil and next to it the nose. The first essential in treatment is the restoration of the upper air passages to normal condition by means of irrigation and thorough cleaning of the nasal passages.

3. Sutherland discusses the problem of children of consumptive parents and the incidence of tuberculosis or weak constitutions in such children. He comes to conclusions now generally accepted which do not require repetition.

9. Smith has prepared an extract of brain, the technic and details of which he describes, which he has used in certain forms of insanity such as dementia praecox, delusional insanity, epileptic insanity, confusional insanity, and melancholia. The brain extract is given by mouth. In the cases he has described it has a powerful and beneficial influence not as to cure but in quieting and relieving distressing symptoms, taking the place of usual hypnotics and sedatives. [J. B. H.]

Correspondence.

FRACASTOR AND CONTAGION.

Boston, 12 December, 1912.

Mr. Editor: Fracastor was, in the 15th century, the most considerable personification of the astrological theory which admitted astral influences as the cause of disease. His poem on Syphilis is probably known to the profession generally, but it is by his work, *De contagione libri tres*, whose publication occurred in the 16th century, that made this physician celebrated. Therein he teaches the doctrine of contagion, that is to say, that certain diseases are propagated by communication from one person to another, by the intermediary of contagious principles coming from the exhalation of the bodies of patients and are spread a little distance away in the air. Beyond this small area they have no action, but they may become attached to certain articles and thus be carried about on straw, cord, rags, house flies, etc.

Having had occasion to refer recently to this work, it occurred to me that the mention of the fly as a carrier of disease in a book written in the 15th century would possibly be of interest to some of your readers.

Very truly yours,

CHARLES G. CUMSTON, M.D.

871 Beacon Street.

THE FIRST TRANSFUSION.

Mr. Editor: The following interesting note is from *La Chronique Médicale* for November, 1912.

"Our Confrère, J. Noir, has brought the following interesting passage from the press of the late regretted Emile Gebhardt to our attention. It is from a work entitled, *Moines et Papes*.

"When Pope Innocent VIII was in his last hours 'his Jewish physician tried to save his life by a criminal procedure: he caused to flow into the veins of the pontif the blood of three young boys. The children died, says Infessura (a chronicler of the times); the Jew fled and the Pope failed to recover. But there was left to the Christian world an unthought of interpretation of the *Sinite, parvulos ad me venere* of Jesus, and a painful impression of a reign sullied by a shameful traffic in sacred things.'

"This passed in 1492 and most of the classic treatises, concludes J. Noir, place the first attempts at transfusion of blood only in the latter half of the 17th century."

Very truly yours,

WM. PEARCE COUES, M.D.

Boston, December 17, 1912.

Miscellany.

RECENT DEATHS.

DR. ELLSWORTH ELIOT, descendent of a noted New England family and long a prominent figure in medical circles in New York, died from bronchitis on December 9, at the advanced age of eighty-five years. He was graduated from the College of Physicians and Surgeons, New York, in 1852, and had practised in New York for over fifty years. Until prevented by increasing infirmity, Dr. Eliot took an active part in the proceedings of the Academy of Medicine, the Pathological Society, the State Medical Society, and the Medical Society of the County of New York, and of the last-named he was president for the years 1872 and 1873. He also took a special interest in the Northeastern Dispensary, to which he remained consulting physician up to the time of his death. He is survived by a daughter and son, the latter, Dr. Ellsworth Eliot, Jr., one of the attending surgeons to the Presbyterian Hospital.

DR. EDWARD F. SCHWEDLER, a retired physician of New York, died from pneumonia at his home in the Borough of the Bronx on December 7, at the age of ninety years. He was born in Germany and was graduated from the University of Leipsic in 1848. He pursued a post-graduate study at the Universities of Vienna and Berlin, and came to New York in 1852. He had a large clientele among the German-American population of the city, and for many years was a visiting surgeon to the German Hospital and Dispensary. He retired from active practice on his seventieth birthday, in 1892, when he devoted himself to research work, though he was frequently called in consultation. Of late years Dr. Schwedler was accustomed to make a trip to Europe each year, and in 1909 was especially honored as one of its oldest alumni at the five hundredth anniversary of the University of Leipsic. He is survived by five daughters, sixteen grandchildren, and six great-grandchildren.

DR. ROBERT A. GUNN of New York, a graduate of the medical department of the University of Buffalo in 1866, died in Bellevue Hospital on December 8.

BOOKS AND PAMPHLETS RECEIVED.

The Treatment of Human Cancer with Intravenous Injections of Colloidal Copper by Leo Loeb, M.D. *Interstate Medical Journal.* St. Louis, Mo.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, DEC. 14, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	12	—
Chicago	—	—	Waltham	14	3
Philadelphia	—	—	Brookline	9	1
St. Louis	—	—	Chicopee	—	—
Baltimore	—	—	Gloucester	3	2
Cleveland	—	—	Medford	6	1
Buffalo	—	—	North Adams	10	3
Pittsburgh	—	—	Northampton	8	3
Cincinnati	—	—	Beverly	5	—
Milwaukee	—	—	Revere	4	—
Washington	—	—	Leominster	2	—
Providence	—	—	Attleboro	—	—
Boston	193	36	Westfield	6	0
Worcester	—	—	Peabody	—	—
Fall River	43	12	Melrose	2	—
Lowell	43	7	Woburn	5	0
Cambridge	20	2	Newburyport	3	1
New Bedford	27	9	Gardner	8	1
Lynn	23	2	Marlboro	6	2
Springfield	—	—	Clinton	2	1
Lawrence	—	—	Milford	—	—
Somerville	18	6	Adams	1	0
Holyoke	25	8	Framingham	3	—
Brockton	16	3	Weymouth	—	—
Malden	—	—	Watertown	3	1
Haverhill	3	—	Southbridge	—	—
Salem	10	3	Plymouth	—	—
Newton	21	2	Webster	4	1
Fitchburg	6	1	Methuen	—	—
Taunton	18	3	Wakefield	1	—
Everett	8	2	Arlington	1	1
Quincy	—	—	Greenfield	1	—
Chelsea	7	3	Winthrop	1	—